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CONTENTS

IRVING ALLEN: *See* Kitson and Allen.
ADA HART ARLITT: *See* Dowd and Arlitt.
GRACE ARTHUR:
A New Point Performance Scale..... 390
MARION A. BILLS:
Social Status of the Clerical Worker and His Permanence on the Job..... 424
GEORGE C. BRANDENBURG:
Analyzing Personality, Part I..... 139
Personality and Vocational Achievement, Part II..... 281
H. E. BURTT AND E. M. DOBELL:
The Curve of Forgetting for Advertising Material..... 5
E. M. DOBELL: *See* Burtt and Dobell.
CONSTANCE E. DOWD AND ADA HART ARLITT:
The Relative Transfer Effects of Supervised Play and Formal Gymnastics..... 215
MAX FREYD:
The Statistical Viewpoint in Vocational Selection..... 349
DOUGLAS FRYER:
Types of Work. A Note on Vocational Interest..... 304
THOMAS R. GARTH:
The Intelligence of Full-Blood Indians..... 382
J. P. GUILFORD: *See* Hyde and Guilford.
RALPH K. HOITSMA:
The Reliability and Relationships of the Colgate Mental Hygiene Test..... 293
H. L. HOLLINGWORTH:
When is a Man Intoxicated?..... 122
JOSEPH L. HOLMES:
The Free Association Method as a Measure of the Efficiency of Advertising..... 60
WINIFRED F. HYDE AND J. P. GUILFORD:
A Test for Classification of Students in Chemistry..... 196
HARRY D. KITSON AND IRVING ALLEN:
Minor Studies in the Psychology of Advertising from the Laboratory of Indiana University..... 367
T. A. LANGLIE: *See* Paterson and Langlie.

GLADYS M. LOWE AND MYRA E. SHIMBERG:
A Critique of the Fables as a Moral Judgment Test..... 53
GRACE E. MANSON:
Differences in Intelligence Tests. The Relative Difficulty of Types of Questions..... 156
Personality Differences in Intelligence Test Performance..... 230
MARK A. MAY:
The Present Status of the Will-Temperament Tests..... 29
J. B. MINER:
The Prediction of a Disparity Between Scholarship and Intelligence..... 357
KATHARINE MURDOCH:
A Study of the Comparative Value of Nine Performance Tests.. 364
H. K. NIXON:
Two Studies of Attention to Advertisements..... 176
FRANCES E. OTIS:
Phenomenal Memory in Its Bearing upon Various Mental Tests. 311
DONALD G. PATERSON AND T. A. LANGLIE:
Empirical Data on the Scoring of True-False Tests..... 339
A. T. POFFENBERGER:
School Achievement and Success in Life..... 22
H. H. REMMERS AND L. A. THOMPSON:
A Note on Motor Activity as Conditioned by Emotional States. 417
W. A. RORISON: *See* Warden, Rorison and Solinger.
SADIE MYERS SHELLOW:
A Suggestion for an Experiment on the Effect of Note-Taking in Lecture Courses..... 69
EUGENE SHEN:
The Influence of Friendship upon Personal Ratings..... 66
MYRA E. SHIMBERG: *See* Lowe and Shimberg.
S. B. SOLINGER: *See* Warden, Rorison and Solinger.
SARA M. STINCHFIELD:
The Speech of Five Hundred Freshmen College Women..... 109
EDWARD K. STRONG, JR.:
Theories of Selling..... 75
DAGNY SUNNE:
Personality Tests: White and Negro Adolescents..... 256
PERCIVAL M. SYMONDS:
Notes on Rating..... 188
L. A. THOMPSON, JR.: *See* Remmers and Thompson.
E. L. THORNDIKE:
On the Provision of Alternative Forms of Examinations Equal in Difficulty..... 1

MORRIS S. VITELES:
The Clinical Viewpoint in Vocational Selection 131
C. J. WARDEN, W. A. RORISON AND S. B. SOLINGER:
Tendencies in the Use of Headlines in Magazine Advertising 225
HERMAN H. YOUNG:
A Speech Clinic Case with Misconduct as a By-Product 371

ON THE PROVISION OF ALTERNATIVE FORMS OF EXAMINATIONS EQUAL IN DIFFICULTY

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It is obviously important that alternative forms of psychological and educational tests or examinations be of approximately the same difficulty and that the amounts of what differences they do have be known. For example, the enormous variation in difficulty among the examinations in the same subject used by the College Entrance Examination Board, together with the fact that the amounts of these differences are known too late to be corrected for, has been their most notorious weakness. It is now proposed to report the percentile position of each candidate as well as his actual score. This will be a considerable alleviation, but new dangers are introduced by the substitution of relative positions for measures of actual ability and achievement. As soon as it becomes known that a college will accept a certain top fraction of candidates who take a College Entrance Board Examination, or that a civil service list will be filled by a certain top fraction of examinees, there will be a strong temptation to increase the number of candidates. Also, the measurement of any change in the general quality from year to year is impossible by percentiles computed separately for each examination. It is consequently desirable to know what may be expected in the way of similarity in active examination-scores from a reasonable amount of care and effort in preparing and equating the alternative forms. The facts concerning fifteen alternative forms of a certain intelligence examination were reported in this JOURNAL (Vol. IV, pp. 283–288). The present note concerns twelve alternative forms of the Thorndike Intelligence Examination for High School Graduates.

Using the same methods of determining difficulty as those described in the earlier report (chiefly the taking of alternative forms by random halves of a group), it appears that the difficulty of any form (for the median candidate for entrance to our best colleges) is rather close to that of any other. To bring the score in any one of the seven examinations of Series 1919–1924 to equality with the score in any other, we have to add as follows:

To the score in Examination of September 1919,	DEBB,	add −3
To the score in Examination of September 1920,	IMDD,	add +3
To the score in Examination of September 1921,	LOEE,	add −1
To the score in Examination of September 1922,	DNFF,	add 0
To the score in Examination of September 1923,	EJC(AA)	add +1
To the score in Examination of September 1924,	BCGC,	add +½
To the score in Examination (extra)	GHAH,	add −½

The average score for candidates is about 75, and the mean square deviation is about 14. The average difference of one form of the examination from another in difficulty (2.2) is thus about $\frac{1}{6}$ of the mean square deviation of the group. The bulk of the differences is due to the first two examinations. In the last five, after time had been available for experimentation, the differences are greatly reduced.[1] The five examinations prepared for 1925–1930 differ one from another in difficulty, by only a quarter of one score point on the average.

This close equivalence was obtained only after much experimentation. In the 1919–1924 series, where the examination consists of twenty-one different sorts of tasks, with from five to sixty elementary tasks of each sort, the experimentation required was simply to measure the comparative difficulty of the different forms of Part I, Part II, and Part III, and put them together in combinations such that the chance greater ease of one would be balanced by the chance greater difficulty of another. With the 1925–1930 series, where there are only

[1] With earlier experimentation, II-B and II-D could have been interchanged, making the 1920 and 1921 examinations almost exactly alike and equal to the average in difficulty.

fourteen sorts of tasks, the experimentation consisted in much preliminary equalizations of tests and parts as well as in final arrangement of Parts in combinations. Also certain "Parts" of extreme ease or difficulty were discarded, the fifteen parts used being a selection from seventeen. In the preliminary work, many forms of the reading tests were discarded. The selection of the forty tests used in the five alternative forms of Part III, for example, was from over fifty which were tried out, each with from fifteen to a hundred individuals, before any form of Part III was constructed.

The amount of time spent in equating the five forms of the 1925–1930 series, after the test materials had all been selected and made into provisional series by random division, was at least eight thousand hours of time spent by subjects in taking tests, at least four thousand hours spent in scoring and tabulating scores. This time could have been reduced by four-fifths, if a large number of individuals of the sort desired could have been induced to take all the different alternative forms, doing their very best with each. Our efforts in this direction, however, met with very little success. Very few college freshmen were willing to take such a series, though the payment offered was double that given for student clerical work. Those who did take the tests did not do so in a way to assure one that they were trying to do their best. It seemed wisest therefore to use groups where the examination was *bona fide*, giving two Parts or two tests whose difficulty was to be equated to random halves of the group.

Doubtless with more experience and wiser planning, the equating could have been more economically done, but the task of equating satisfactorily two-hour or three-hour examinations in Plane Geometry or French, or fitness to be a general clerk or a rural delivery postman, will require much labor.

There is danger that when examining boards appreciate the amount of labor required to make a series of examinations equal in difficulty, they will sacrifice the quality of the examinations in order to reduce this labor. The procedure should, of course, be to choose all the materials for a series of

examinations for their *significance*, that is, the *validity* correlation of their composite with the criterion. The maximum convenience in giving, scoring, and arranging into alternative forms should then be secured, but at no cost to the significance of the scores.

THE CURVE OF FORGETTING FOR ADVERTISING MATERIAL

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THE PROBLEM

The curve of forgetting was determined originally by Ebbinghaus.[1] He studied nonsense syllables until he could repeat them correctly and then measured the rate of forgetting by the amount of time required for relearning them at different intervals after the original memorizing. Somewhat similar studies with nonsense syllables, poetry, or letters have been made by Radossawljewitsch and by Bean.[2] The results are usually shown by plotting time on the abscissa and retention on the ordinate. Such curves in the foregoing studies all agree in showing a rather abrupt drop at the outset followed by a much more gradual decline. For instance with nonsense syllables as much was forgotten in the first twenty minutes as in the following thirty days, and with poetry as much was lost in two days as in the next twenty-five. This suggests the desirability, if material is to be presented repeatedly, of having the earlier repetitions closer together than the later in order to strengthen the associations before they have become greatly weakened.

It seems plausible that these same principles would apply to memory for advertising material. It has been suggested

[1] Ebbinghaus, H. Ueber das Gedachtniss. 1885.

[2] Radossawljewitsch, P. R. Das Behalten und Vergessen bei Kindern fund Erwachsenen nach experimentallen Untersuchungen. 1907.

Bean, C. H. The Curve of Forgetting. *Archives of Psychology*, no. 21. For a brief summary of this work and a chart showing typical curves of forgetting cf. Starch, D. Educational Psychology, 1920, p. 156.

that, if an advertisement is to be repeated or some type of follow-up procedure used, the early repetitions should come closer together than the later. For instance Kitson[3] suggests a distribution of eight advertisements through a year's campaign with the early ones a month apart and the later ones two months. Similarly Hollingworth[4] proposes a series of appeals directed to the same person at intervals of 2 days, 5 days, 10 days and 20 days.

While this generalization from laboratory experiments with nonsense syllables, words or poetry to advertising procedure involving concrete names of commodities or brands is probably warranted it seemed well to test it experimentally. The present study accordingly, required the subject to associate names of commodities with fictitious trade names of those commodities and determined the curve of forgetting. In some series follow-up procedure—i.e., a second repetition of the names—was introduced at different intervals after the original presentation in order to discover the relative merits of early and late follow-up.

SERIES I

Material

The material for the first series consisted of 100 pairs of words. The first word of each pair was the name of a commodity and the second a fictitious brand or trade name of that commodity, such as:

Perfume.....Pettal, China.....Mangone

Fictitious trade names were used to avoid error due to certain commercial names being more familiar to some subjects than to others. These 100 pairs were selected as a result of preliminary experiments with a few subjects to discard any that involved unusual or catchy associations. They were typed in random order on a wide adding machine ribbon with the pairs 1 inch apart.

[3] Kitson, H. D. The Mind of the Buyer. 1921, p. 48.
[4] Hollingworth, H. L. Advertising and Selling. 1920, p. 205.

A Balopticon was adapted for the presentation of the words. The ribbon was fed across the illuminated field between guides. This field was covered by a piece of metal containing a slot about 20 by 70 mm. through which the pairs of words were visible as they passed underneath and were thus projected on the screen.

Mimeographed blanks were provided containing selected lists of the original commodities such as:

Perfume.....
China.....

Other blanks had the name of each commodity followed by four alternative trade names, one of which had occurred with it in the original list, such as:

Perfume.....Arden; Pettal; Lotus; Blossom
China.....Gosser; Pope; Curtis; Mangone

Method

The group method of experiment was used. The subjects sat in a dark room and observed the material as it was projected on the screen by means of the Balopticon. The ribbon containing the pairs of words was pulled along between the guides by the experimenter. A metronome somewhat muffled indicated to him the time and every 4 seconds he pulled the ribbon about 1 inch thus exposing a new pair of words. This motion had been practised previously and with the exposure of 4 seconds probably did not involve a significant error. The list was shown a second time in identical manner immediately after the first presentation. It seemed better to do this than to give one presentation with 8 second exposure because of possible lapses of attention.

The subjects were instructed as follows:

This is an experiment upon memory for trade names. You will be shown in succession pairs of names like "soap—Ivory," "automobile—Ford." The first name in each pair is the name of a commodity and the second name in each pair is that of a brand. Your are to try to remem-

ber the names of each pair together so that subsequently when you see the name of the commodity you will be able to recall the corresponding brand. For instance, you should remember "soap" and "ivory," together so that when later shown "soap" you will recall "ivory." The brand names in the actual experiment, however, are mostly unfamiliar. There are 100 pairs in the list and you will see each for 4 seconds. You will not be expected to remember every one but to get all you can.

Immediately after the words had been presented twice the lights were turned on and blanks distributed for the initial recall. Each subject received a blank containing 20 names of commodities that had appeared in the screen. However, all the subjects did not receive the same list. The 100 words were divided at random into 5 groups of 20 and each group was mimeographed on a separate blank. Moreover the subjects were divided into 5 squads of approximately equal size. In the initial test squad A was given list 1, squad B list 2, squad C list 3, squad D list 4, and squad E list 5. When another test was given later (infra) squad A was given list 2, squad B list 3, etc. Likewise for still later tests each squad had a still different list. Thus each squad recalled in subsequent tests words upon which it had not been tested previously. In each test, however, every one of the 100 words was given to some squad. In this way average results for all subjects on different tests tended to eliminate any errors due to difficulty of the words.

In the initial test each squad was first given the list of 20 names of commodities and instructed to write after each the name of the brand that had been presented with it on the screen. No time limit was set for this recall but all the subjects finished in less than 4 minutes. As soon as the blanks were collected a second set was distributed. Each squad now received the same names of commodities as before but each was followed by four alternative brands and the subjects checked the alternative that had been presented with the commodity originally. No time limit was set but all finished within 3 minutes. In subsequent tests the subjects worked more rapidly so that 3 minutes was sufficient both for recall

and for recognition. Thus on the first day there was available for each subject his score in recalling and in recognizing 20 trade names and results were obtained for 5 squads each with a different group of 20 names.

The purpose of this series was to determine the curve of forgetting without any follow-up procedure. One week after the first test, each squad was given blanks containing 20 of the original names of commodities, but a different 20 from those recalled by that squad on the first day. The original list was *not* presented on the screen at this time nor subsequently during this series. Each squad recalled the associated trade name as in the first test. The blanks were collected and the corresponding ones distributed for the recognition test in exactly the same manner as before. A week later each squad was tested on a third list of 20 words in identical fashion. Similarly after 3 and 4 weeks other tests were made.

The subjects were 58 students in an advanced class taught by the senior writer who likewise conducted the actual experiment. In this and subsequent series the results of subjects who did not participate in the entire experiment were discarded.

Results

The subjects' blanks were scored number correct. There was of course a frequent tendency to recall a trade name that had been presented with some other commodity than the one in question but no consideration was given to such cases. Likewise mere similarity in meaning or in some of the letters was insufficient to give a correct score unless there was absolute identity.

The results are summarized in table 1. Each figure indicates the per cent of the list of 20 recalled or recognized at the time specified. The successive rows indicate the average[5] results for the different squads and the average of all squads. The columns indicate results for the initial test, for the test after 1 week, 2 weeks, etc. The left portion of the table gives

[5] The arithmetic mean is the average used throughout.

results for recall, i.e., where the subject wrote after the stimulus word the one that had been shown with it previously. The right portion of the table gives results for recognition, i.e., where the subject selected one of the four alternatives. For instance, immediately after the initial presentation squad A on the average recalled 40 per cent of the words on which it was tested while it recognized 74 per cent. A week later this squad on the average recalled only 5 per cent of the words on which it was tested but recognized 71 per cent correctly. Two weeks after the initial presentation this squad was able to recall only 1 per cent but recognized 66 per cent. The column

TABLE 1

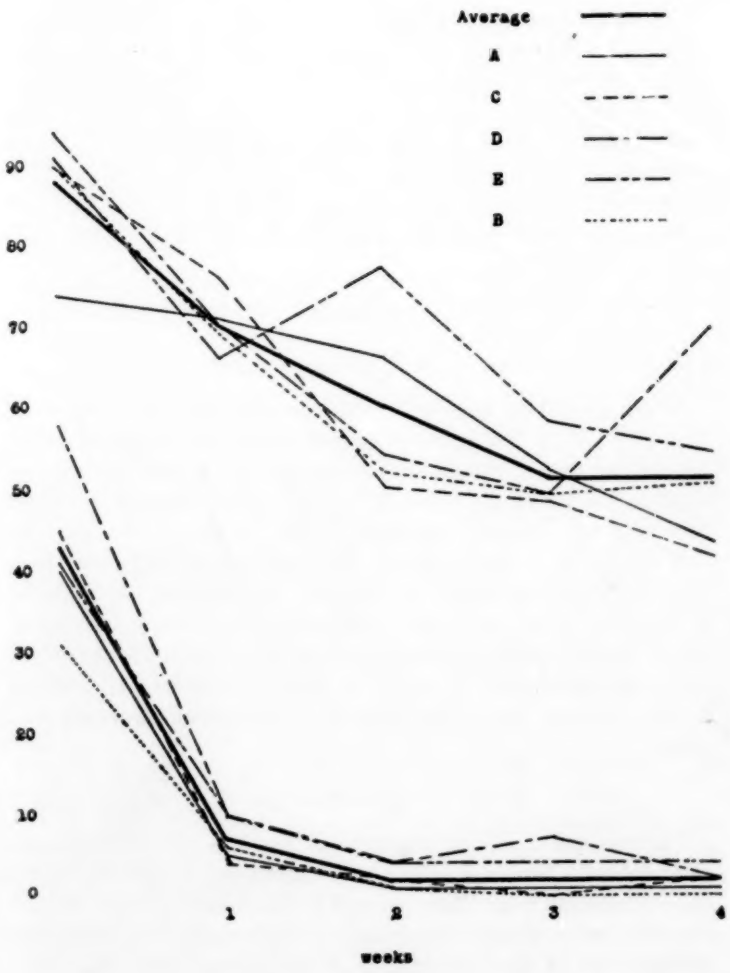
Per cent of retention after different intervals

SQUAD	RECALL					RECOGNITION					N
	Initial	1 week	2 weeks	3 weeks	4 weeks	Initial	1 week	2 weeks	3 weeks	4 weeks	
A	40	5	1	1	1	74	71	66	52	43	10
B	31	6	1	0	0	90	69	52	49	50	14
C	45	4	2	0	2	90	76	50	48	41	12
D	58	10	4	7	2	94	70	54	49	69	9
E	41	10	4	4	4	91	66	77	58	54	13
Average.....	43	7	2	2	2	88	70	60	51	51	

at the extreme right gives the number of subjects in each squad. The bottom row gives the averages (unweighted) of the figures in the column above it. The same results are shown graphically in figure 1. The abscissa represents time, i.e., initial, 1 week, 2 weeks, etc. The ordinate represents per cent of retention—recall in the lower set of curves and recognition in the upper. A separate curve is made for each squad and for the average of all squads as indicated in the key.

The results show the typical progress of forgetting. The average retention drops from 43 to 7 per cent within one week and within two weeks drop to 2 per cent. In the recognition method the drop is not as abrupt but still very marked. The

Figure I



curves appear similar to those found in previous studies of forgetting with other kinds of material.

This preliminary series then confirms the usual assumption that advertising material follows the same principles as does other memory material with respect to the curve of forgetting. This is especially true in recall and this is perhaps the aspect that is most important for the advertiser. He is frequently attempting to have a commodity associated with his trade name so strongly that when subsequently the need for that commodity arises the prospect will think of the proper trade name. This sort of association in our results weakens very rapidly with time.

SERIES II

Material

The material for this series was the same as that in Series I, viz., the list of 100 pairs of names typed on a ribbon. The blanks for testing recall and recognition however were made in units of 10 rather than 20 words. The makeup of these lists was not entirely random. Three of them involved the first 30 words of the original list arranged at random; three more involved the next 30 words of the original list likewise in random order and the remaining 40 of the original list were taken at random to make the other 4 lists. This arrangement was necessary in order to allow a consecutive portion of the original list to be subsequently presented again (cf. infra).

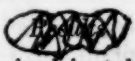
Method

The method of initial presentation and the instructions were identical with Series I. The mimeographed blanks for recall and recognition were likewise used in identical manner. However this series studied the effect of "follow up," i.e., a second presentation of the material at a subsequent time and particularly the effect of having this follow-up early or late in the series. The first two tests were also closer together than

in Series I inasmuch as it was suspected that the curve would approach its minimum in less than a week. The subjects were divided into 3 squads.

The entire list of 100 was presented twice in immediate succession at the rate of 4 seconds per word on February 5. Each squad was tested by recall and recognition methods on two lists of 10 words each. On February 8, 30 pairs of the original list (numbers 1 to 30) were presented once at the usual rate. Immediately each squad was tested on 10 words from this 30 and also on 10 words of the original list that had not been presented since February 5 and that had not been previously tested with the squad in question. On February 15, 30 more pairs of the original list (numbers 31 to 60) were presented once in the usual way. Immediately each squad was tested on 10 of these, on 10 that had been presented only on the 5th but never tested until the 15th with the squad in question and also on 10 that had been presented on the 5th and again on the 8th but not tested till the 15th with that squad. On the 21st no further presentation was given but each squad was tested on 30 words with which it had not been tested previously—of which 10 had been given on the 5th, 10 on the 5th and 8th and 10 on the 5th and 10th. A careful grouping of the words and arrangement of schedule made it possible to carry through this program with no two squads having the same list under the same conditions and with each list occurring under every condition for some squad. It was possible to obtain from this data three curves for each squad—the ordinary curve of forgetting as in Series I, a curve of forgetting with early follow-up—i.e., on the 8th and a curve of forgetting with late follow-up, i.e., on the 15th.

As before the lists were scored on the basis of number absolutely correct. The subjects were 41 students in an advanced class taught by the senior writer who also conducted the experiment.



The results are summarized in table 2. The figures represent the per cent of the list recalled or recognized under the

given conditions. For each squad the first row indicates results for words presented only at the outset, i.e., the ordinary curve of forgetting as in Series I. The second row gives memory for words presented initially and also after 3 days and the third row for words presented initially and after 10 days. The columns indicate the day on which the words were tested. By way of illustration the recall results for squad A will be explained. With words of the original list that were shown

TABLE 2

Per cent of retention after different intervals with early and late follow up

SQUAD		RECALL				RECOGNITION				N
	Presentation	0 days	3 days	10 days	16 days	0 days	3 days	10 days	16 days	
A	Initial	49	9	1	2	88	71	54	44	14
	Initial and 3 days		58	23	10		98	93	70	
	Initial and 10 days			42	13			93	78	
B	Initial	47	16	8	6	96	82	66	63	12
	Initial and 3 days		55	18	15		100	88	79	
	Initial and 10 days			49	10			88	81	
C	Initial	59	9	9	8	94	73	73	84	15
	Initial and 3 days		57	25	22		97	89	91	
	Initial and 10 days			54	21			96	84	
Average	Initial	52	11	6	5	93	75	64	64	
	Initial and 3 days		57	22	16		99	90	80	
	Initial and 10 days			48	15			92	81	

only on the first day 49 per cent were recalled immediately. When tested on others of these words after 3 days only 9 per cent were recalled; after 10 days only 1 per cent and after 16 days 2 per cent. This is the typical curve of forgetting. With words that were shown at the outset and a second time after 3 days and tested immediately thereafter 58 per cent were recalled, while other words presented similarly but not tested until 10 days after the beginning had 23 per cent retention and still others similarly presented but not tested until the last

day of the series had a 10 per cent retention. With words shown at the outset and a second time after 10 days and tested immediately thereafter 42 per cent were recalled while other words presented similarly but not tested till 16 days after the beginning had a retention of 13 per cent. Similar data is given for recognition and for all three squads. The bottom block gives the averages (unweighted) of the corresponding figures above. The extreme right column gives the numbers in each squad.

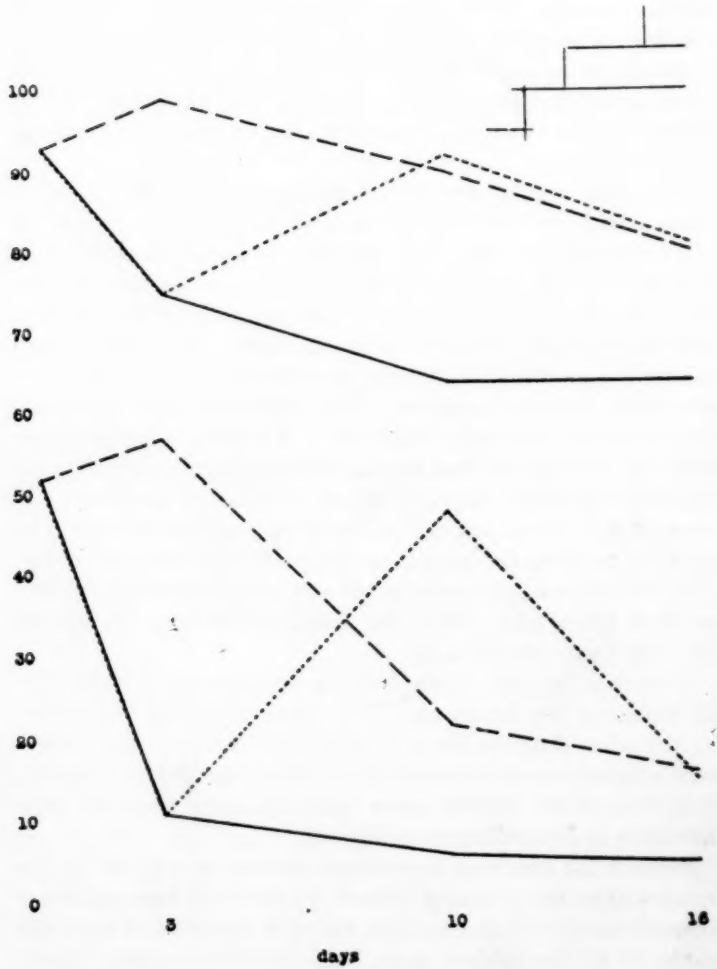
The same results are shown graphically in figure 2. The three squads are not graphed separately but only the average of all the squads—the data that appear in the bottom block of table 2. The three upper curves are for recognition and the three lower for recall. The abscissa represents time in days and the ordinate the per cent of retention. The heavy curve comprises the words that were presented only at the outset—the usual curve of forgetting. The dash line gives the retention for words with early follow-up. Of course its first ordinate must be the same as that for the ordinary curve of forgetting. After the follow-up, however, there is a rise in the curve. It subsequently drops but not as low as the original curve. The dotted line gives the retention for words with late follow-up. The first two ordinates must be the same as those of the ordinary curve of forgetting. After the follow-up there is an abrupt rise and a subsequent drop.

Inspection of the table and figure indicates clearly the advantage of the follow up. The curve rises after the follow-up and never drops as low as it does without follow-up. Moreover a superiority of the early follow-up to the late is manifest. The peak of the former curve is higher while there is little difference in the ordinates at the end.

Perhaps the best way to compare the two systems of follow-up as well as the ordinary curve is to total the four ordinates for each curve. This was done for each subject and then the results of all the subjects averaged. These averages in terms of per cent of possible maximum score appear in table 3.

Obviously the follow-up procedure adds distinctly to the

Figure 11



memory value. The significance of the differences from the standpoint of probable error is given in table 4. The difference between E and I for recall is 8.1 the probable error of difference while that between L and I is 6.1 P.E. The corresponding figures for recognition are 9.0 and 7.4. Moreover in recall all the total scores of the individual subjects are greater for E than for I and 98 per cent of the subjects have a higher total score in L than in I. With the recognition method the corresponding figures are 95 and 98 per cent.

TABLE 3

Total memory value (average of all subjects) in terms of per cent of maximum possible score

		RECALL	RECOGNITION
I	Initial only	19	74
E	Early follow up	37	92
L	Late follow up	31	86

TABLE 4

Differences divided by probable error and per cent of subjects yielding differences in the direction indicated

	$E>I$	$L>I$	$E>L$
D/P.E. recall	8.1	6.1	2.3
D/P.E. recognize	9.0	7.4	3.4
Per cent subjects recall	100	98	68 (15)
Per cent subjects recognize	95	98	88 (10)

The difference between E and L is not as marked as the above. In recall (table 3) the total memory value for E is 37 per cent as against 31 per cent for L, while with recognition the corresponding figures are 92 and 86 per cent. The former difference (table 4) is only 2.3 the probable error of the difference and the later 3.4 P.E. The distribution curves if plotted overlap considerably. However in recall 68 per cent of the subjects have a higher total for E than for L while 15 per cent (indicated in brackets in the table) have equal totals for E

and *L*. This leaves only 17 per cent actually in the reverse direction from the general tendency. In recognition 88 per cent of the subjects have a higher total for *E* with 10 per cent equal. The preponderance of the evidence is thus in favor of the early follow-up.

SERIES III

Another series was performed similar to Series II except that the presentation was auditory rather than visual. The experimenter read the words aloud keeping time with a muffled metronome, set at one beat a second. The commodity was read on the first beat, the brand on the second followed by two beats pause. The next commodity was read on the fifth beat, etc. The same list was used as in Series II and the same mimeographed blanks. In the initial presentation the complete list was read twice. In the subsequent presentation of 30 words only one reading was given. A different group of subjects of course, participated—47 members of an elementary psychology class. Three squads were selected and the same schedule followed as in Series II. This group worked somewhat more rapidly than the others recording the results for recall and recognition in about 2 minutes and 1 minute respectively.

In scoring the results it was not possible to hold to absolute correctness of every letter in the recall tests because some of the fictitious names may have sounded differently from the way they were spelled. In scoring, a word was counted correct if the spelling indicated the correct sound.

The results are summarized in table 5 which is identical in form with table 2 and presented graphically in figure 3 which is identical in form with figure 2. The auditory data appears quite similar to the visual although the recognition curves are not as clear cut because, for some reason, the subjects scored higher in this series and in recognition came very near perfection.

The total memory value, i.e., the total of the ordinates of the curves is given in table 6 and the significance of the differ-

TABLE 5

Per cent of retention after different intervals with early and late follow up

SQUAD	Presentation	RECALL 0 days	RECALL 3 days	RECALL 10 days	RECALL 17 days	RECOGNITION 0 days	RECOGNITION 3 days	RECOGNITION 10 days	RECOGNITION 17 days	
A	Initial	53	38	8	10	92	81	73	65	13
	Initial and 3 days		70	37	18		100	95	81	
	Initial and 10 days			55	27			98	95	
B	Initial	69	25	7	6	97	80	80	67	22
	Initial and 3 days		76	37	28		100	96	76	
	Initial and 10 days			59	27			97	75	
C	Initial	55	9	8	7	95	85	74	67	12
	Initial and 3 days		50	17	16		98	82	85	
	Initial and 10 days			50	21			96	79	
Average	Initial	59	24	8	8	95	82	76	66	
	Initial and 3 days		65	30	21		99	91	81	
	Initial and 10 days			55	25			97	83	

TABLE 6

Total memory value (average of all subjects) in terms of per cent of maximum possible score

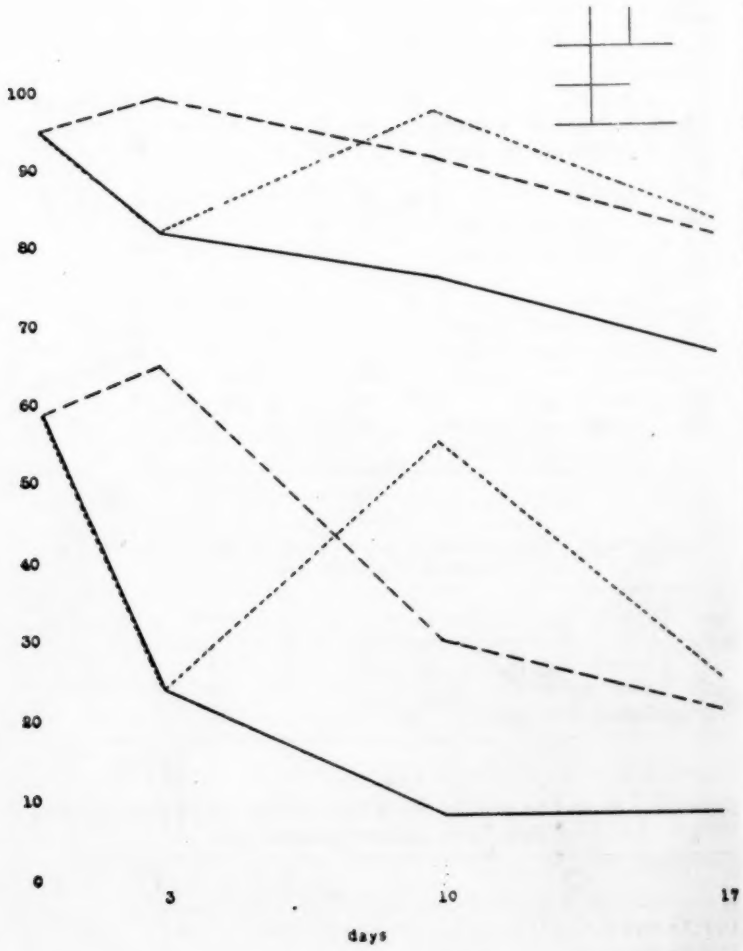
		RECALL	RECOGNITION
I	Initial only	25	81
E	Early follow up	44	93
L	Late follow up	41	90

TABLE 7

Differences divided by probable error and per cent of subjects yielding differences in the direction indicated

	E > *I*	*L* > *I*	*E* > *L*
D/P.E. recall	10.3	9.2	1.4
D/P.E. recognize	8.9	7.0	1.9
Per cent subjects recall	98 (2)	98 (2)	72 (4)
Per cent subjects recognize	98 (2)	91 (9)	66 (15)

Figure III



ences in table 7. These tables are identical in form with tables 3 and 4 respectively. The follow-up methods prove as superior to the other as they did in the preceding series. The advantage of the early over the late follow-up is likewise manifest although not quite as marked as in Series II. The differences are not as significant from the standpoint of probable error but the majority of the subjects have a higher score on E than on L. (The figures in brackets in table 7 indicate equal score.) The auditory series then confirms the visual.

SUMMARY

A study was made of the curve of forgetting with material designed to produce the kind of association frequently involved in actual advertising procedure. Pairs of words—a commodity and a fictitious trade name for it—were presented at constant rate. The subjects were tested for both recall and recognition of the trade names. Some of the words were tested immedately after the presentation and others after a lapse of time ranging from 3 days to 4 weeks. In some series a portion of the original list was presented a second time either 3 or 10 days after the initial presentation. It was thus possible to plot the ordinary curve of forgetting and that same curve as influenced by early or late follow up. Both visual and auditory presentation were employed.

The curve of forgetting with this sort of material shows the characteristic initial drop that has been found in other studies with other material. From the standpoint of total memory value the importance of the follow-up procedure is obvious. The early follow-up, under the conditions of the experiment, appears uniformly superior to the late follow-up. Conclusions drawn regarding advertising follow-up procedure on the basis of previous theoretical experiments would seem well founded.

SCHOOL ACHIEVEMENT AND SUCCESS IN LIFE

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Evidences of a positive relationship between success in school work and success in one's life work are interesting and important. A very close relationship, if such were found, between performance in college or technical school and in practical affairs would make one's school record a valuable diagnostic sign for vocational guidance work. It might become a valuable adjunct to tests or in some cases an adequate substitute for them. Other less tangible benefits from the discovery of such relationship might be found in a heightened respect for college work on the part of the student and his future employer.

We must depend upon the accumulation of studies of the degree of relationship in particular instances to provide the basis for evaluating school work as a vocational guidance device. One of the most recent and extensive investigations of this sort is that of Gambrill,[1] who compared college achievement in terms of scholarship and extra-curricular activities with income twelve and one-half years after graduation. Three of her conclusions will be cited here:

1. The relationship between college standing and income twelve and one-half years after graduation is too slight to warrant the use of marks as the chief basis for predicting the kind of success that the average employer has in mind when he consults the appointment committee in regard to students or graduates. Marks should, however, be considered as one factor in prognosticating vocational success, since the coefficients of correlation found were positive. The relative weight to be given scholarship in predicting later achievement in any given occupation can only be determined through further investigation.

2. The relation between extra-curricular activity and income is somewhat closer than that between scholarship and income. This emphasizes the necessity of faculty and administrative recognition of student

[1] B. L. Gambrill, College Achievement and Vocational Efficiency, Teachers College Publications, 1922.

life as a selective agency of even greater importance than the curriculum so far as the qualities that make for future vocational success are concerned.

3. The results here reported prove nothing as to the relative contributions of college studies and of extra-curricular activities to the production of vocational success, nor as to the effects of study or neglect of study upon vocational success. Rather, they serve as measures of the two sets of activities, curricular and non-curricular, as selective agents in identifying the qualities which operate in later life to produce vocational success (page 78ff.).

Chapter 2 of this same study gives a good summary of the earlier work on the relation between school work and vocational success.

The most recent study of this type appeared in the *Military Engineer* for January-February, 1924, under the title, Relation of Class Record to Success. As this journal is not readily accessible to students of Applied Psychology, the author, Major Wm. E. R. Covell, Personnel Officer, Office Chief of Engineers, and Captain Lohr, Editor of the *Military Engineer* readily granted permission to reprint the article almost in its entirety. The principal changes are the elimination of two figures and the addition of a table of original data kindly furnished by Major Covell.

Is high class standing in college an indication of future success? In the race of life, will the honor graduate maintain his relative standing ahead of the poorer student?

In a course of psychology at the Massachusetts Institute of Technology, the text-books used deplored the lack of data to study the later results of class standing. This, together with an article entitled, "Are Honor Men the Best Men?" by Major J. G. Steese, Corps of Engineers, have induced an extended study of the records of the Military Academy at West Point.

Here we have excellent materials for a laboratory test, for a record of the class standing at West Point of every graduate, and a history of his later life, may be found in the various editions of General Cullum's Register.

We will extend this study to include the World War and will enlarge it by considering, in addition to purely military success, that in civil life. Also, in the hope that it may be interesting, there will be included the relation of class standing to athletics and to the dismissals from the army, the latter being the antithesis of success.

But before a start can be made in the study of class standing as a prediction of success, the latter term must be defined. What is meant by success? It would appear that some variation in its definition will not mar the value of any study made, provided the same definition remains fixed during the entire study. Because of this the definition used herein is arbitrary, but is applied to every graduate alike. We have taken as a test of military success the appointment of the graduate to the grade of Brigadier General or above, including the Brevet rank during the Civil War and the temporary rank during the World War. The rank of Brigadier General in the Southern States during the Civil War has not been included. But many graduates in this category are included in the civil list where the measure of success has been taken approximately as that required for inclusion in Who's Who, namely, bank president, member of Congress, mayor of city, editor, author, etc.

In the course of this study, the records of over four thousand graduates have been examined, from the class of 1818, when class standing was first introduced at West Point, to the class of 1905, which includes the last Brigadier General in point of graduation. With such a large number the law of averages is almost sure to work and the results obtained may be taken as a good indication of the general laws.

In the first place, it is desired to show the relation between class rank and success in after life. To accomplish this, the list of successful graduates has been arranged in the order of their relative class standing and this list divided into four numerically equal groups, as follows:

CLASSIFICATION	TOTAL NUMBER IN GROUPS	NUMBER SUCCESSFUL	PER CENT OF SUCCESSFUL
First quarter	1068	305	32.5
Second quarter	1068	251	26.7
Third quarter	1068	220	23.4
Fourth quarter	1068	164	17.4

But even more remarkable are the facts concerning the first, second, next to last and last man in each class, eighty-nine classes being available for study:

CLASSIFICATION	NUMBER SUCCESSFUL	NUMBER PER CENT	RATIO TO LAST MAN
First man	42	47.2	8.4
Second man	34	38.2	6.8
Next to last man	12	13.5	2.4
Last man	5	5.6	1.0

The tables are self explanatory and show clearly and beyond argument that the higher a man stands in his class while at school or college the greater is his expectation of success in after life.

The following figures constitute the raw data from which the author constructs his briefer tables:

CLASS RANK	NUMBER OF MEN OF THIS RANK	TOTAL DISTINGUISHED	CLASS RANK	NUMBER OF MEN OF THIS RANK	TOTAL DISTINGUISHED
1	89	42	43	46	10
2	89	34	44	44	7
3	89	31	45	41	6
4	89	34	46	39	4
5	89	24	47	39	6
6	89	25	48	38	7
7	89	26	49	35	5
8	89	26	50	34	4
9	89	21	51	33	5
10	89	21	52	28	5
11	89	26	53	27	6
12	89	20	54	22	5
13	89	19	55	22	3
14	89	24	56	20	4
15	89	16	57	19	1
16	89	16	58	18	3
17	89	28	59	16	2
18	89	26	60	16	0
19	89	21	61	16	2
20	89	26	62	15	3
21	89	18	63	14	2
22	89	23	64	13	1
23	88	21	65	12	1
24	87	18	66	12	0
25	85	18	67	10	2
26	85	12	68	9	0
27	83	14	69	9	1
28	81	17	70	9	1
29	81	17	71	9	0
30	80	22	72	8	0
31	78	20	73	7	0
32	78	24	74	6	0
33	76	18	75	6	1
34	74	13	76	5	0
35	73	8	77	4	0
36	72	12	92	4	0
37	68	16	93	3	0
38	65	9	113	3	0
39	62	9	114	2	
40	61	10	123	2	
41	54	10	124	1	
42	51	8			

Ignominious dismissal from a man's chosen profession is surely the antithesis of success. What then, does the relation between class rank and dismissals from the Army show? This is a little more difficult question as it depends more on a man's morality than on his ability. Also, it is necessary to consider this question from two angles, according, perhaps, to the point of view of the reader. Because at the time of the Civil War, while practically all of the southern officers resigned, fourteen were dismissed from the Army of the United States for "treasonable utterances." These have not been included in the table:

CLASSIFICATION	TOTAL IN GROUP	NUMBER DISMISSED	PER CENT DISMISSED
First quarter	1,068	11	18
Second quarter	1,068	10	16
Third quarter	1,068	17	27
Fourth quarter	1,068	24	39
Total	4,272	62	100

The numbers considered here are too small to establish any general law, but it is interesting to note that the tendency seems to be to present a table of percentages just the reverse of the table shown for successful graduates. The latter gives for the upper and lower halves of the class:

Successful men

	per cent
Upper half of class	59
Lower half of class	41

while the former gives:

Dismissed

	per cent
Upper half	34
Lower half	66

The question of the first man and last man in this case is debatable because of the small numbers, but the facts may be mentioned:

Dismissed

	per cent
First man in class	2
Last man in class	3

The perpetual argument as to the effect of athletics on class standing has waged for years but, for the most part, with few available facts. For this reason, it may be of interest to cite the results of this study and to comment thereon.

In this portion of the study the test of athletic prowess has been taken as the winning of the coveted "A" while at the Military Academy. The classes from 1891, when these marks of athletic distinction were first awarded, to include the class of 1920 have been taken. The results are as follows:

CLASSIFICATION	AWARDED "A"	PER CENT
First quarter	83	20.9
Second quarter	107	26.9
Third quarter	105	26.3
Fourth quarter	102	25.9
Total	397	100.0

The quarters are very well grouped except the first and this perhaps should be discussed. One explanation may be that participation in athletics tends to lower marks received so that, though the athletes may have been evenly divided at first, their athletic training caused a few to drop from the first quarter to the second, from the 2nd to the 3d, from the 3d to the 4th, and from the 4th quarter to a non-graduated status. The 102 of the 4th quarter includes 13 men who won their "A's" but never graduated or, it may be that high standing in class tends to lead a man into other branches of academy activity. But, this question can hardly be considered as settled, and offers an opening for future study.

A more interesting question is "what effect does the winning of the college letter have on success in after life?" In this case, too, the numbers considered can hardly be said to give conclusive results, but they are most remarkable and interesting.

The classes from 1891 to 1905, inclusive, have been taken for study, the former being the first class in which "A's" were awarded and the latter the last class to produce a man of distinction.

	NUMBER	DISTINGUISHED	PER CENT
Total in classes	1,068	125	12
Total "A" men	174	21	12

In other words, the athlete had exactly the same chance to become distinguished as the other men of his class and no more.

Our conclusions will be brief and simple and, except perhaps, for the first, open to the objection that they have not been completely proved. However, the data in this case certainly tend to show:

1. That the higher a man stands in college, the greater is his expectancy of success in after life.
2. That a man in the lower part of the class is more apt to become a moral failure than a man in the upper part.
3. That class standing is no criterion of athletic ability.
4. That an athlete has the same expectancy of success and no more than any other man of his class.

THE PRESENT STATUS OF THE WILL-TEMPERAMENT TESTS[1]

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The WT[2] tests are one of the best instances we have of an attempt to measure temperament objectively. The underlying conception is that fundamental behavior patterns are revealed in certain skilled motor performances such as speech and handwriting. Downey (9, p. 49) asserts that these tests are the results of several years of inquiry into the nature of muscle-reading and handwriting. Her experimental studies of muscle-reading revealed the fact that certain forms of mental content are expressed in subtle muscle twitches, and also in delicate expansions and contractions. There are great individual differences in this phenomenon. Some persons' muscles are easier to read than others because (she thinks) they are more explosive and have fewer inhibitions. In some persons there seems to be an easy and forceful flow of nerve currents into the muscles; in others, the flow seems obstructed. This immediately suggests temperament types. Thus she says (9, p. 54): "Temperament appears to be very determined by the readiness with which the motor discharge, which initiates movement, occurs in the nervous system and the degree to which it stimulates consciousness."

Downey found that good subjects for muscle-reading dem-

[1] This is one of a series of papers on A Survey and Evaluation of Existing Character Tests being prepared in connection with an inquiry in character education made possible by a grant to Teachers College from the Institute of Social and Religious Research. MS. submitted October, 1924.

[2] WT will be used throughout this paper as an abbreviation for Will-Temperament.

onstrations could be selected by a simple handwriting test. Persons who write more rapidly under distractions are usually good subjects. This very fact together with the ancient belief that character is revealed in handwriting led her to investigate graphology scientifically. These studies resulted in a denial of most of the claims of the graphologists but led her straight to the WT tests. The central idea of the tests is that individuals vary in the amounts of nervous energy[3] they possess and also in the ease or difficulty with which it is discharged into the motor pathways. Temperaments can be thought of as arranged on a linear scale. At one end is the individual whose activity is free, forceful and explosive; at the other end is the person whose energy is limited and inhibited. In the middle are those with varying amounts of energy and varying degrees of inhibition. Temperament is then a function of two things, *amount* of energy and its *inhibition* or *facilitation*.

Richardson (17), an English school master, advanced practically the same theory of character in 1915. His notion is that character is based fundamentally on an inherited "responsiveness" to stimuli and that individuals vary in the nature, magnitude, and speed of their responses. Character varies with conditions that cause variations in the nerve impulses. These variables are nutrition, temperature, fatigue, concentration of solution, pressure and other physical and chemical agents. The two fundamental measures of character are *responsiveness* and *inhibitions*.

Downey attempts to measure temperament by measuring (1) the speed of reactions, (2) the forcefulness and decisiveness of reactions and (3) the persistence or perseveration and care with which the reactions are made. These three variables seem to her to reveal the amount of available energy. For each of these she has devised four tests.

1. "Speed and fluidity of reaction" is measured by the following tests:

A. Speed of movement. Measured by the average time taken in two trials to write the phrase "United States of

[3] Unfortunately she does not define "nervous energy."

America." The subject is instructed to write at his *usual* speed and in his *usual* style.

B. Freedom from load. Measured by the ratio of natural speed of handwriting to fastest speed.

C. Flexibility. Measured in two ways: First, by the degree of success in disguising his handwriting; second, by speed and success in copying a model. The phrase written is the same as above.

D. Speed of decision. Measured by the time taken to check certain character traits which the subject thinks he possesses.

2. Forcefulness and decisiveness of reaction, "the aggressive traits," measured by the following:

E. Motor impulsion. Measured by writing signature in four ways. (*a*) Usual style and speed with eyes closed. (*b*) Eyes open but counting by 3's aloud. (*c*) Eyes closed but counting by 3's aloud. (*d*) Eyes closed, counting by 2's, examiner taps with pencil. Score: Changes in size and speed of writing under distraction.

F. Reaction to contradiction: Suggestibility. Early in the examination S is asked to choose between two envelopes marked M and N. He is told that one contains an easy test and the other a hard one. This test consists in trying later to convince him that he chose the one he did not. The score is the degree to which he sticks to his original decision.

G. Resistance to opposition. Tested by blocking the movement of the pencil when S is writing blindfolded. Score is the exertion he exhibits in overcoming the obstacle.

H. Finality of judgment. Measured by returning to the Speed of Decision test and asking him to revise his judgments of the traits checked. Score is the time spent in revision and the number of changes made.

3. "Carefulness and persistence of reaction" is tested as follows:

I. Motor inhibition. Measured by the time of retarded handwriting. The subject is asked to write the phrase "United States of America" as slowly as he can. Score is the average of three trials.

J. Interest in detail. Measured by the exactness with which a model is copied, first when he is instructed to be as exact as possible and second when he is told to do as well as possible and choose his own speed. Score is the relative time taken and the exactness achieved.

K. Coördination of impulses. Measured by the degree of success achieved and the time taken in writing the phrase in a very narrow space.

L. Volitional perseveration. Measured by the time taken in working out a disguised hand. The subject is told to write the stock phrase in such a disguised way that even an expert could not detect it.

We now have before us the WT tests in their historical setting. There are several questions to be asked about them.

1. Are these handwriting exercises adequate measures of such things as speed of reaction, forcefulness of reaction, etc.? Of the 12 WT tests 9 are handwriting tests. Downey faces this problem and in her book (9) takes each test separately and attempts to justify its existence by showing that the handwriting exercise involved is a true measure of the trait in question. For each test she presents practically the same arguments, which are in the main as follows:

a. She appeals to her previous experimental work on graphology and muscle-reading. Of the "Speed of Movement" she writes (9, p. 87): "The most serious question that can be raised concerning the use of graphic speed in the test is that which asks whether rapidity of handwriting is, in any way, an index of general speed of movement. In another connection the author has shown that graphic speed is, in fact, symptomatic of general bodily speed of movement." Here she refers to her book on "Graphology and the Psychology of Handwriting" Chapter VII.

Turning to this reference we find reported an experiment in which six student judges and five faculty judges rated 12 students on a list of movement traits, one of which was "rapid or slow." She admits that the judges "reported great difficulty in passing these judgments." These ratings were correlated

with her handwriting records and the correlation between ratings and normal writing was 0.55 and with speeded writing 0.61. Assuming that these judgments are entirely reliable, one could scarcely conclude that "graphic speed is, in fact, symptomatic of general bodily speed" in the face of a correlation of 0.61. Before such a conclusion can be drawn speed of handwriting should be shown to correlate highly (0.80 or more) with such bodily functions as tapping, reaction-time and other measures of bodily movement.

b. As a second criterion she uses inter-correlation amongst the tests of a group. That is, if the first four tests all measure some form of speed of reaction, there should be a high inter-correlation between them. She says that Speed of Movement, for example, correlates positively "with all other items in the speed group, which can only be interpreted as meaning that it has characterial significance." In the first place, Ruch and Del Manzo (19) have shown that these inter-correlations amongst the tests of a group are not always even positive, and even if they were all very high, they would not prove her point. Here are four tests all purporting to measure some aspect of a general factor called "Speed and Fluidity of Reaction." If there is a high inter-correlation among these four traits it means only that they measure the same thing, but it does not tell what they measure.

c. Another criterion is a set of correlations between the Downey individual form and the Carnegie Group Form reported by Ream (16). These correlations will be examined later. The point here is that a high correlation between the group form of a test and the individual form does not prove or even hint that the test measures the trait suggested by the label. However, in fairness it should be said that she simply reports these inter-correlations without urging that they are significant.

d. Then she makes a strong appeal to personal observation and to knowledge of personal acquaintances. Of Freedom from Load she writes: "That the ratio of speeded to normal writing-times is actually an index of amount of general inertia

or 'load' appears highly plausible from a study of the records of individuals with whom I am intimately acquainted." Of course, there can be no objection to any investigator making use of all possible sources of information, but the appeal to personal experiences needs to be checked by laboratory experiments.

Downey (9, p. 173) admits the general criticism that these handwriting exercises are probably not true measures of the traits suggested in their labels. She recognizes the fact that the more scientific procedure would be to label them "Disguised Handwriting Test," or "Speed of Handwriting Test," etc., instead of the characterial labels they now bear. But her excuse is that the present procedure has aroused a degree of interest among psychologists that the more scientific procedure would not have aroused. This is undoubtedly true.

2. What is the reliability of these tests? The usual method of determining reliability is by finding the self-correlation of tests. The data are obtained by giving the same test or duplicate forms twice or more. We have a few instances of this with the WT tests. Ream (16) gave the Downey individual form and the Carnegie Modified Group Form to 23 subjects. Meier (15) gave the Downey individual form and the Downey group form to 64 subjects. Their correlations are:

	TRAITS*					
	A	B	C	D	E	F
Ream	0.72	0.05	0.12	0.42	0.50	0.42
Meier	0.57	0.06	−0.01	0.18	−0.23	−0.22
	G	H	I	J	K	L
Ream	†	†	0.55‡	0.72‡	0.16	0.90‡
Meier	−0.05	0.65	0.55	0.48	0.04	0.20

Meier found the correlation between total scores to be 0.60.

* The letters refer to the traits as lettered earlier in this paper.

† No equivalent.

‡ Correlation ratio, but he does not say which one.

The above figures are not quite fair since neither the Carnegie group test nor the Downey group form are the exact equivalent

of the Downey individual form. Hence, these low self-correlations mean only that, on the whole, the individual Downey tests and their supposed group equivalents do not measure the same thing.

Ruch and Del Manzo (19) attempted to measure the reliability in a different manner. According to Downey, tests A–D, that is the tests of the speed group, reveal the "hair-trigger" type of personality; tests E–H reveal the "wilful aggressive" type; and tests J–L show a "slow accurate, tenacious," pattern. If this grouping of tests is correct one would expect the following things to be true:

a. That the inter-correlations among the tests of a group would be positive and high.

b. That any one test of a group would correlate positive and high with the total of the remaining three tests in that group.

c. That the correlations between the tests of one pattern and those of another pattern would be low.

We have two tests of the first proposition. Downey (9) plotted scatter-diagrams for each combination of the tests. She did not compute the coefficients of correlation but calculated the per cent of agreement within three places and compared this with chance agreement which she says is 58 per cent. She interprets an agreement of 75 per cent within three places as a high correlation. Unfortunately she does not report all of these. I have collected by patterns or groups those reported.

PATTERN I—TRAITS A–D		PATTERN II—TRAITS E–H		PATTERN III—TRAITS J–L	
	per cent		*per cent*		*per cent*
AB	75	EF	65	IJ	77
AC	67	EG	66	IK	65
AD	69	EH	73	JI	74
BC	+	FE	66	JK	+
BA	76	FG	69	KJ	69
CD	+	FH	65	LJ	72
CA	+	GF	+		
CB	+	HE	79		
DB	64	HF	65		

These are of the nature of correlation ratios. Traits AB, for example exhibit agreement of 75 per cent within three places when B is compared with A, and 76 per cent when A is compared with B. In the above scheme the first letter stands for the independent trait. The (+) plus sign means that she simply reported a positive relationship without stating the amount.

Ruch and Del Manzo (19) report inter-correlations on 146 high school students. Their results by patterns are:

PATTERN I		PATTERN II		PATTERN III	
	r		r		r
AB	0.36	EF	−0.05	IJ	0.08
AC	0.28	EG	0.00	IK	0.12
AD	0.37	EH	−0.02	IL	0.00
BC	−0.05	FG	−0.16	JK	0.24
BD	0.33	FH	−0.15	JL	0.18
CD	0.05	GH	0.01	KL	−0.18
Average	0.22	Average	−0.06	Average	0.07

They also obtained the correlation between each test in a pattern and the sum of the three remaining tests.

(A	B	C	D)
0.54	0.28	0.10	0.39

(E	F	G	H)
− 0.08	− 0.23	− 0.13	− 0.09

(I	J	K	L)
0.07	0.33	0.07	0.05

This means that trait A correlated 0.54 with B + C + D, that B correlated 0.28 with A + C + D, etc.

Ruch and Del Manzo attempted to find the coefficient of reliability of the entire test by using the Brown formula for correlation of alternate tests. Since there are three main patterns each tested in four ways, two half-scales can be made in three different ways.

1. The correlation of odd numbered with even numbered tests: $r = 0.17$, $B = 0.29$.
2. The first two tests in each pattern with the last two: $r = 0.31$, $B = 0.47$.
3. The 1st and last test in each pattern with the middle two: $r = 0.24$, $B = 0.38$.

B is the correlation, prophesied by the Brown formula, that would result if two similar whole forms were correlated.

These low reliability figures may mean either that the WT tests are rather unreliable or else the method of determining their reliability is wrong.

3. What is the validity of the WT tests? Against what criteria have they been checked?

a. Validation by checking against ratings. Ruch (18) secured independent ratings in the 12 Downey traits from two groups of judges (a faculty group and a student group) on 20 advanced students. Scores in the twelve traits were correlated with the ratings for each subject. This yielded twenty correlations for the pooled estimates of student judges, and twenty for the faculty judges. The student estimates and scores correlated all the way from -0.64 for one subject to $+0.54$ for another, with an average of 0.08; test scores and faculty judgments correlated from -0.18 to $+0.29$, average 0.01; pooled student judgments with pooled faculty judgments correlated from -0.65 to $+0.88$ with average at $+0.46$. Another set of correlations was made by traits, the subjects being the variables, and this yielded twelve coefficients, one for each trait. They are:

Test with faculty estimates run from -0.33 to $+0.51$, average $+0.07$.
Test with student estimates run from -0.23 to $+0.53$, average $+0.20$.
Faculty estimates with student estimates $+0.22$ to $+0.86$, average $+0.62$.

Ruch and Del Manzo (19) continued this study using as subjects 146 high school students. In order to avoid some of the errors involved in rating schemes they asked each teacher to pick out of each class ten students strongest in "will-power" and ten who are weakest in this respect. The teachers agreed

almost perfectly on 28 students out of the 146; they were about evenly divided between the sexes and between the "strongs" and the "weaks." This group of 28 were given the Downey tests and were rated on the Downey traits according to the descriptions of the traits taken verbatim from her manual. The correlations between test score and the pooled ratings are:

Trait	A	B	C	D	E	F
r	0.37	0.02	0.30	− 0.29	0.10	− 0.03
Trait	G	H	I	J	K	L
r	− 0.04	0.17	− 0.09	0.51	0.53	0.17

Meier (15) gave the Downey individual tests to 106 high school students, sexes evenly divided, ages running from 13 to 20. Three judges rated each pupil for the twelve Downey traits on a "man-to-man" type of rating scale. The judges in each case were (*a*) the teacher who knew him best, (*b*) a parent, and (*c*) a friend over eighteen who had known him for at least two years. Meier took extreme pains to get the descriptions of the traits clear. He even sent them to Downey who approved them with slight modifications. His correlations are:

Trait	A	B	C	D	E	F
r	0.21	0.07	0.11	0.19	0.10	0.05
Trait	G	H	I	J	K	L
r	0.14	0.14	0.24	0.21	0.07	0.03

Herskowitz (13) selected three groups of persons who were well acquainted with each other within the group. They rated each other on each of the Downey traits using a scale of 0 to 10. There were 7, 8 and 9 persons respectively in the three groups. He describes the personnel of the three groups giving the age, sex, schooling, occupation of each individual and also states the relationships existing among the members of each group. First he pooled all estimates and all scores and correlated 2152 independent judgments with that many scores and obtained a correlation of 0.06 P.E. 0.012. Believing that this low correlation was partly due to heterogeneity of

material he next correlated the average of each individual with score in traits which yielded a correlation of 0.13, P.E. 0.038. Next he correlated the scores in the test with average judgments for each test taken separately. The results are:

Trait	A	B	C	D	E	F
r	− 0.03	0.18	0.12	− 0.05	0.21	0.10

Trait	G	H	I	J	K	L
r	0.18	0.35	0.29	− 0.001	0.28	− 0.14

He undertook to correct these correlations for attenuation by a method which need not be discussed here but which is statistically sound. He finds that under the most favorable conditions one could not expect a correlation between Downey test scores and ratings to be higher than 0.40. He concludes that the Downey tests in their present form could not be used profitably in his studies of racial temperaments.

Miss Bryant (1) gave the Downey tests to one hundred delinquent boys at the Whittier State School. She secured estimates of each boy from three competent judges. They judged only the last group (i.e., the volitional traits) or rather traits corresponding to the last group. The traits judged were self-confidence, self-control, power of concentration, persistence, initiative in every day affairs. The correlation between test score and ratings for these traits is 0.29.

The results of all these attempts at validation by the rating method are uniformly ambiguous. Nearly all the correlations are low. Does this mean that the tests are not valid, or the ratings unreliable, or that this is not the proper method of testing the tests? An examination of the data reveals the fact that these ratings are about as reliable as ratings usually run. Other kinds of tests have been validated by this method. We venture the assertion that after ample allowance has been made for errors in ratings the correlations will still be low.

One difficulty seems to be that judges simply cannot identify the psychological traits supposedly measured by the Downey tests. At least, they cannot identify them from Downey's descriptions of them. For example, take the first trait, Speed

of Movement. The rater is asked to judge an individual on his general speed of movement. The judge naturally thinks about how quickly he moves, how fast he walks, how fast he talks, etc. But the test measures how fast he writes. If the judges were asked for an opinion of the subject's speed of handwriting, the correlations might be higher. If this is the case, then these results show that the Downey tests do not measure the traits named in the labels.

Another possibility is that since the Downey tests attempt to measure a very subtle relation between the amount and availability of energy and how it is expressed, the average judge cannot evaluate this for any individual. This would mean that the Downey traits are simply too subtle to permit of judgments and hence the test cannot be validated by the rating method. This seems to be Downey's opinion. But on the other hand, she does not discard ratings entirely. In discussing the appropriateness of a certain handwriting exercise as a measure of a trait she continually appeals to her judgment of "personal acquaintances."

In her book (9, p. 217) she uses a self-rating scheme as a means of validation. She asked several "highly educated individuals" to rate themselves on a scale of ten points for each of the tested traits. In each case a comparison was made between the self-rated "profile" and the test-score "profile." She presents three of these double profiles all of which show a very close correspondence. Next she secured similar self-ratings from 21 judges "all of superior education and intelligence" and calculated the average amount of displacement of ratings from test score for each trait. Her results are

TRAIT	AVERAGE DISPLACEMENT	TRAIT	AVERAGE DISPLACEMENT
A	1.45	G	1.31
B	2.02	H	2.71
C	1.97	I	1.52
D	1.65	J	2.23
E	1.17	K	2.85
F	1.53	L	2.21

I take it that this table means that the average difference between test-score and self-rating on trait A is 1.45, etc. This statistical procedure is ambiguous. It would have helped in the interpretation if she had published some measure of the variability of these differences. Their meaning is illuminated somewhat when we remember that each scale contains ten points. Hence the above with the decimal moved one place to the right will tell the percentage of the scale. For instance, the average deviation in trait K is 28.5 per cent of the total scale. In this particular trait I would judge that the correlation is zero or negative. So even with "highly educated and intelligent judges" each judging their own traits, the rating method of validation is not wholly satisfactory.

One wonders what would happen if a group of eminent psychologists, skilled in the art of introspection and possessed with keen judgment and insight into the subtle workings of the minds of others, should make a careful study of the fundamental ideas back of the WT tests so as to become thoroughly saturated with them, and then try their hands at rating themselves and their intimate acquaintances.

b. Validation by correlation with other objective tests. We have two instances of other tests devised to measure the WT traits. Downey and Wagoner (22) worked out a will-temperament speech test. The idea was to parallel the handwriting tests with similar speech tests. For instance, the speed of movement is measured by the speed of reciting the alphabet three times without stopping. The correlations between the handwriting tests and their speech equivalents are:

Speed of movement	0.05
Freedom from load	0.20
Flexibility	0.39
Motor Impulsion	0.30
Reaction to contradiction	0.60
Motor Inhibition	0.63
Interest in detail	0.38
Coördination of impulses	0.11
Volitional perseveration	0.46

Miss Downey attributes some of the low correlations to attenuating conditions which she enumerates. She does not offer any corrections for attenuation.

Filter (11) studied two of the Downey traits rather extensively by checking them against ratings and also against other objective tests designed to measure the same traits. Unfortunately he selected two traits which are not based on handwriting. They were "reaction to contradiction" which he classifies as "self-assurance" and "speed of decision." He checked the "reaction to contradiction test" (the envelope test) against two other objective tests. (1) A String Figures test which calls for an estimate of one's capacity to reproduce on his fingers with a string a printed figure or diagram. (2) The Découpage test (about the same as the Binet paper folding test) which calls for an estimate of one's ability to reproduce a visualized diagram from a folded and cut paper. The correlation between the Downey test and each of these two tests is -0.10. He validated by ratings all three of the tests (the Downey and his two) and found the Downey test much lower than his own.

He selected and devised six speed of decision tests including the Downey character trait checking test and five others. He gave these tests to 142 subjects. The correlations between the Downey test and the other five are 0.43, 0.47, 0.56, 0.31, 0.51, respectively. Further analysis of his results revealed the fact that only about 10 per cent of his subjects were uniformly high on all tests; 8 per cent constantly mediocre, and 13 per cent constantly low. The remaining 69 per cent are neither beast, bird nor fish in speed of decision.

c. Validation by identification of profiles. Downey (5) instructed a group of judges in the meaning of the twelve traits. Each judge was presented with twelve profiles and a list of the names of the persons to whom they belonged. The task was to match the name with the profile.

Correct identification of profiles ran from 0 to 5 out of 12, or from total failure to identify any profile (1 judge) to 41 per cent of successful identifications (2 judges). The percentage of successes for the total of 144 judgments (12 judgments by each of 12 judges) was 22, where chance success would be less than 1 per cent.

As these results were somewhat unsatisfactory she tried it again, this time submitting profiles in groups of three, asking each judge to chose from the three one profile that best fitted a given person. In series A the three profiles were similar; in series B they represented contrasting types. There were in series A 69 faculty judges, 54 men student judges and 37 women student judges. Their average successes were 33.3, 44.4 and 51.3 per cent correct. (Chance success, is, of course, 33.3 per cent.) In series B, the average successes of the three groups of judges were 78.7, 71.9 and 58.6 per cent, respectively. Again she does not publish a measure of variability but gives the range as from 0 to 100 per cent correct. She examined in detail certain of the cases of mistaken identity and found in most cases the reason for failure. She concludes that in these cases the judge was judging some superficial appearance rather than the underlying temperament traits.

d. Validation by differentiation. Do the tests have differential value? Will they distinguish between the delinquent and the non-delinquent, between the negroes and whites, between the successful and the unsuccessful in salesmanship or other affairs?

In 1918 Downey studied insane and psychopathic individuals with the WT tests. She found what she thinks is a "characteristic profile" for dementia praecox, manic, depressed, and psychopathic patients. But these groups studied were all very small (four or five each) with considerable variability within each group.

Bryant (2) compared a group of 100 delinquent boys at the Whittier State School with a group of 100 non-delinquent boys selected in such a way as to be comparable with the delinquents in age, intelligence, etc. She compared the total scores of these two groups on the WT tests.

	RANGE	MEDIAN
Delinquents	22–75	45.5
Non-delinquents	40-81	61.0

The differences between the medians is 15.5 points which seems reliable, although she does not report a measure of its

unreliability. Assuming that the S.D. of the total is 20 points (one-sixth of the range) then the P.E. of the difference is about 2.5. This is verified somewhat by other comparisons. From her graphs I would judge that not more than 15 per cent of the delinquents reached the median of the non-delinquents. She states that in the delinquent group 68 per cent of the cases are within the 40 to 50 quintile; while in the control group 67.5 per cent of the cases are in the 50 to 69 quintile.

She next compared the delinquents with the control group trait by trait. The traits in which they differed most are speed of decision, motor inhibition, coördination of impulses. In the coördination of impulses the average delinquent score was 1 point, the average control score was 7 points out of 10. Again she does not report the unreliabilities of these differences. She did, however, compute the correlation between each test and total score for each group, and compared the groups in this way. But such differences in correlations are hard to interpret.

Freyd (12) gave the Carnegie group form of the WT tests to groups of socially inclined and mechanically inclined individuals. He had two mechanical groups, mostly engineering students, and three social groups, all salesmen or students of salesmanship. Here is his summary table:

TRAIT	SALES GROUP AVERAGE	MECHANICAL GROUP AVERAGE	DIFFERENCE	RELIABILITY
Speed of decision (1)	24.34	28.44	4.10	∞
Speed of decision (2)	21.63	25.66	4.03	555,556
Flexibility	3.00	2.60	0.40	2,301
Motor Impulsion	197.98	201.64	3.66	8
Reaction to Contradiction	17.10	25.59	8.49	∞
Ratio of 1 and 2 above	122.00	125.76	3.76	5.3
Motor inhibition	14.18	9.00	5.18	31,546
Coordination of impulses	73.62	94.73	21.11	∞
Interest in detail	9.68	6.75	2.93	∞
Volitional perseveration	103.58	101.76	1.82	3.2

(1) Speed of decision in checking "better traits."
(2) Speed in checking "personal traits."

The last column states the chances that a real difference does not exist. For instance the chances are 1 to 8 that there is no real difference between the groups in "motor impulsion."

McFadden and Dashiell (14) sought differences between whites and negroes with the WT tests. They compared a group of white and negro high school and college students. The two groups were not exactly comparable because the negroes were older for their educational status than the whites. There were 78 in each group. Their main results are:

TRAIT	WHITE AVERAGE	NEGRO AVERAGE	DIFFERENCE
A	5.46	3.60	1.80
B	6.06	5.76	0.30
C	4.65	4.11	0.54
D	3.66	4.28	0.62
E	4.14	5.31	1.17
F	5.65	6.45	0.80
G	5.63	5.19	0.44
H	5.23	5.52	0.27
I	5.01	5.28	0.27
J	6.89	6.67	0.22
K	4.82	3.01	1.81
L	6.23	5.74	0.49

The authors do not report the unreliability of these differences but they do give figures from which they may be computed for the college group. I find that these P.E.'s of differences run from about 0.30 of a point to 0.50 of a point. In the above table there are not over three reliable differences. The traits in which these differences exist are A, E and K which are speed of movement, motor impulsion, and coördination of impulses, the whites excelling in the first and last.

The total scores for the two college groups were compared. They are: The mean total score of the white college group is 68.08, of the negro college group 59.05; the medians are 70 and 57. There is a difference of about 9 points between the means and 13 points between the medians. The P.E. of

these differences is not given, but I judge it to be about 1.5 for the mean and about 2.0 for the median. Only 15 per cent of the college negroes passed the median of the college whites.

In these studies two results seem to stand out clearly. First, there is no characteristic or easily identifiable profile for any one group. No one could look at a group profile and say whether it is that of a group of whites, negroes, delinquents, normals, insane or anything else. Second, total scores apparently have some differential value.

e. Validation by testing the prognostic value of these tests. The question is can these tests be used for predicting any kind of human behavior?

Clark (3) scored the conduct-record of delinquent boys at the Whittier State School on a scale of 1, 2, 3, 4, 5 according as it was reported bad, poor, fair, good, excellent. The correlation between the average response rating and the total score on the WT tests is -0.22. But the correlation between WT total score and *change* in conduct-response is $+0.26$. Improvement in response may be predicted to a slight degree from the WT score.

Poffenberger and Carpenter (20) studied the school success of 97 children in grades 6, 7, and 8, ages 10:11 to 15:7, I.Q.'s, 82 to 160. Each pupil was rated for "school success" by three teachers and the ratings were averaged. The average ratings were correlated with intelligence test scores, 0.70, 0.74, 0.69, for grades 6, 7 and 8 respectively; and they correlated with I.Q. 0.70, 0.77, 0.77 for the three grades.

From the scatter-diagrams two groups were selected. The "success" group with a higher rating for school success than I.Q. would indicate, the average I.Q. being 106.6. The "Failure" group with lower success rating than I.Q. would indicate. The average I.Q. of this group was 116. Each group was tested with the WT tests. The question is, are there any temperament traits or groups of traits that will differentially characterize the success group and the failure group. There were certain traits in which the success group always stood high and the failure group low. These were

interest in detail, assurance, volitional perseveration. The success group was low in freedom from load and motor inhibition. By pairing each of the twelve groups in combinations and studying the scatter-diagrams, it was found that the success group possessed certain combinations of traits. Thus, there are two factors really, one is the trait and the other is its relation with other traits. For instance, speed of decision when coupled with coördination of impulses makes for success; but when coupled with low coördination or lack of coördination makes for failure. By some such scheme as this, it is possible to predict school success or failure by a combination of intelligence and temperament tests.

Stone (21) used a modified form of the WT test in studying the disparity between the intelligence and scholarship records of Dartmouth students. He used the ratio between normal and speeded handwriting as a measure of *tension* and the ratio of normal to retarded handwriting as a measure of perseveration. He believes that the discrepancies between intelligence and scholarship may be accounted for by some such tests as these.

Downey (8) has made two or three similar studies the results of which are summarized in her book (9, ch. 17). This summary consists mostly of composite profiles and case studies which I cannot reproduce here. She summarizes her results:

> Students with high intelligence rating but a low WT score usually succeed academically, although not to the degree warranted by their intelligence, and, with a certain combination of traits may fail. Students with a low will-score who are rated in either group III or IV[4] for intelligence, fail to make good as students. Students of inferior intelligence but strong temperament qualities may succeed in maintaining a passing grade.

She found a correlation of 0.40 between intelligence scores on the Thorndike Examination and grades; and a correlation of 0.32 between WT scores and grade; and a correlation of 0.554 between a combination of the intelligence and the WT

[4] Refers to Thorndike's grouping and means average or low intelligence.

scores and grades. As supplements to intelligence tests the WT tests have great promise. But what behavior may be predicted by the WT tests alone has not been determined.

4. What is the relation of the WT tests to intelligence? The following correlations have been reported:

INVESTIGATOR	TEST	SUBJECTS	r
Downey	Binet (Terman)	20 high school students	0.77
Downey	Thorndike	34 high school students	0.47
Downey	Alpha	"A more uniform group"	0.20
Meier	Terman Group	64 high school students	0.60
Bryant	Binet (Terman)	100 delinquent boys	0.38
Bryant	Binet (Terman)	100 delinquent boys	0.48

Ruch and Del Manzo (19) correlated the separate Downey traits with the Terman Group Test and the Morgan Group Test using as subjects 146 high school students. They found,

Trait	A	B	C	D	E	F
r	0.40	0.10	0.20	0.16	− 0.03	0.20

G	H	I	J	K	L
0.11	0.14	0.16	0.33	0.34	− 0.05

They also computed the first order partials between combinations of traits taken two at a time with intelligence constant and found that they were about the same size as these above. This means that intelligence is not a common factor accounting for inter-correlation amongst the WT traits. These writers think that there is practically no relationship between the Downey traits and general intelligence score. But total WT scores do correlate rather high with intelligence test totals. There may be many reasons for this. There probably is some connection between intelligence and this thing called temperament. But what the connection or relation is, the above figures do not show.

Downey (9, p. 278) thinks that "a temperamental pattern carries with it implications concerning the *quality* of intelligence, although not indicating the *level* of intelligence." In

support of this she presents four typical profiles representing three qualities or types of intelligence: (1) The slow, cautious, deliberate, accurate type; (2) the quick, impulsive, rapid-fire explosive type; (3) an irregular, temperamental type (4) a type with a low score all the way through. She presents statistics on increased scores on Alpha when the time limits are off to show that the slow groups improve the most. Then she presents her usual case studies.

Her argument is good but her evidence is not convincing. It would be very fortunate indeed to discover a device that would measure intelligence horizontally, a thing that has been talked of a great deal. It would also be an achievement to be able to measure the social and mechanical types of intelligence. But do the WT tests accomplish these things? Proof that they do has not been presented. The only thing we can say is that they test something that does not appear to be intelligence but which correlates highly with scores on intelligence tests.

5. What uses may be made of the WT tests? Downey (9, p. 299 ff) lists a number of things that may be studied with her tests. Some of them are, racial differences in temperament, medical diagnosis, court work, the feeble-minded, social delinquents, disciplinary problems, social adaptations, salesmanship ability, executive ability, social leadership, literary temperament, research ability and ability to judge character.

Some of these have already been studied with the WT tests and the general results are reported in this paper. About all that can be said is that their value as instruments of investigation remains to be determined.

6. What value have these tests as a means of character study? This question cannot be answered without stating first the particular aspect of character study one has in mind. There are obviously many different angles from which character may be viewed and many points from which its study may be approached. Before considering some of these let us see what the author of the tests thinks of them as character tests.

Downey (9, p. 60–61) says: "The will-temperament test,

since it taps chiefly the innate tendencies, is only in part to be conceived as a character test." Then she goes on to say that "character is not, then, a sum-total of native tendencies; it is a product built upon these tendencies; it is the *direction* in which the native tendencies are turned. It follows that character is not subject to measurement through tests precisely the same way as native tendencies are, although one may take a cross-section of it at any particular moment. The will-temperament determines the form assumed by character, although it does not determine its content."

Unfortunately she lets the matter rest here. Her statements are not very clear and the distinction between the form and content of character is ambigious. Anyway she does not consider the WT tests as measures of character, except in part and which part she does not state.

One of the most common methods of character study is that of analysis into traits. Can character traits (assuming that there are such things) be studied profitably by the WT tests? Perhaps they can, but the above results seem to show clearly that the Downey tests do not measure any easily identifiable traits. It is very doubtful if these handwriting exercises will correlate highly with anything that could be regarded as a character trait. Whatever else they measure, they do not measure traits.

Character is commonly regarded as conduct. Do the WT tests measure conduct? About the only data we have on this point are those of Clark and he found a negative correlation between WT score and the conduct-response score of delinquent boys. But he also found a slight positive correlation (0.29) between change in conduct-response and WT score. Conduct is a complex social affair and one would hardly expect to find it correlated with simple handwriting exercises.

Character may also be regarded as the predictability of behavior. Can behavior be predicted by these tests? The results seem to show that academic success is in some instances better predicted by a combination of WT tests and intelligence tests than by intelligence alone. But when we consider the rather high correlation between some types of intelligence tests

and the WT tests we wonder how much of the prophecy is due to intelligence and how much to temperament.

While it is true that the WT tests will not foretell what any person will do in a given situation, yet the general nature of his reactions may be predicted. For example, Downey would say that the will-profile will foretell whether or not an individual's responses will be strong or weak, deliberate or impulsive, aggressive or its opposite, and so on. This type of prediction is very desirable and it seems that the WT tests have definite value at this point.

Character may also be approached from the side of social attitudes. No one to the knowledge of the writer has attempted to correlate the WT tests with such attitudes as loyalty, good-will, or used it to distinguish between social and anti-social interests. It may very well be that persons with anti-social impulses will exhibit different profiles from those with social impulses. The nearest approach we have to this is the work done with delinquent boys at the Whittier State School. No differentiating profiles were obtained, but there were striking differences between the total scores of delinquents and non-delinquents.

Perhaps the greatest value of the WT tests lies not in their usefulness as measures of character or anything else, but rather as research methods. Temperament is bound to play an important part in all character studies. Moreover, we cannot hope to make much progress in this direction until we have secured some reliable methods of measuring human energies and the ways in which they are expressed.

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A CRITIQUE OF THE FABLES AS A MORAL JUDGMENT TEST

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Personality, character and temperament have lately claimed much attention in psychological thinking, for it is recognized that though they are more subtle than intelligence, they are no less important. Several ethical discrimination tests have been devised for the evaluation of these character traits.

In 1919, S. L. and L. W. Pressey[1] included in their "cross-out" tests a test of moral judgment. The children were presented with lists of habits, vices, traits, etc., and asked to cross out the thing they considered worst. The results are expressed in medians for each age which, of course, give no indication of the correlation between an individual's judgment and his behavior.

Kohs, 1921, formulated an ethical discrimination test which incorporated the common sense questions of the Army Alpha; the Pressey moral judgment test; some of the proverbs of the Otis test; and some of the proverbs of Guy G. Fernald's ethical discrimination test. Two new tests are also included (1) definition of moral terms; and (2) evaluation of different kinds of acts.[2] The tentative classification of norms rates individuals on the basis of their scores from average adult to moral imbecile.[3]

Perhaps the most extensive study in this field is that of

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[2] Kohs, S. C. An Ethical Discrimination Test. *Journal of Delinquency*, vol. VII, no. 1, January, 1922, p. 1.

[3] *Ibid.*, p. 15.

Dr. Marie McGrath. By standardizing her tests "after the order of the intelligence tests" she hoped to be able to measure kinds of moral knowledge and possible mental deficiencies in this field.[4] She employs "a series of tests and exercises, a group of pictures, and a number of little stores."[5] No attempt was made to correlate intelligence or conduct with an individual's score. Dr. McGrath gives percentages of successful answers which presumably represent the performance of an "ordinary" child at each age.

All the above tests have implied the supposition that moral behavior and moral judgments are closely related. If this were true, we would be justified in assuming that such tests afford a trustworthy indication of the subject's character. One method of critically evaluating such an hypothesis would be to administer the same test to two groups one delinquent and the other non-delinquent, and to compare the results. The Judge Baker Foundation offers an opportunity for carrying out such an investigation. Here, extensive studies are made, not only of young people presenting actual conduct problems, but also of those brought for vocational guidance. The latter constitute an excellent check group in the attempt to ascertain how adequately verbal responses give a clue to the individual's moral calibre.

For this investigation we have used the scores obtained by approximately 2000 children on the Terman Fables test. The ages range from eleven to eighteen years. This test was given at the Judge Baker Foundation as a part of the Stanford-Binet scale. These little stories of concrete situations involving moral values seem analogous to other tests of ethical discrimination. Moreover, Terman in his revision of the Binet-Simon scale, states that this test is particularly valuable in the mental examination of delinquents.[6]

[4] McGrath, M. C. A Study of the Moral Development of Children, *Psychological Monograph*, vol. XXXII, no. 2, 1923, p. 3.

[5] *Ibid.*, p. 11.

[6] Terman, L. M. Measurement of Intelligence. Houghton Mifflin Co., p. 299.

According to his norms the fables test is passed at twelve years if the child's score is four; at sixteen years if his score is eight. Since no provision is made by Terman for children between these ages, we evolved for the purpose of this study an arbitrary scale of values. A score of 5 was counted successful for thirteen years, 6 for fourteen years, and 7 for fifteen years. This group of thirteen, fourteen, and fifteen year-olds will hereafter be referred to as the doubtful group. The records of 1443 delinquents and 455 non-delinquents were used.[7] Following the Terman classification of I.Q.'s obtained on the Stanford-Binet, each subject was placed in one of the following groups: normal (i.e., I.Q. 90 or above), dull, (i.e., I.Q. 80 to 90) defective, (I.Q. below 80).

TABLE 1

	1443 DELINQUENTS	455 NON-DELINQUENTS
	per cent	*per cent*
(928) Successful	48	54
(625) Unsuccessful	35	27
(345) Doubtful	17	19

Table 1 shows the percentage of successful, unsuccessful and doubtful performances for delinquents and non-delinquents.

We find here that the differences are so small as to be considered practically negligible. Of the successful, there is a difference of only 6 per cent in favor of the non-delinquents, and of the unsuccessful, a difference of only 8 per cent in favor of the delinquents. Thus our results do not offer any basis for differentiating delinquents and non-delinquents, according to their ability to form moral judgments.

The division of the groups, according to mentality, shows much more significant results, as can be seen from table 2.

[7] *Delinquents*, i.e., those apprehended for such offenses as larceny, sex misconduct, petty misdemeanors, etc. *Non-delinquents;* i.e., those referred to the Judge Baker Foundation for educational or vocational advice.

It is to be noted that the difference here is not between delinquent and non-delinquent but between normal and defective children. This can readily be seen from the charts. Fifty-six per cent of the delinquents and 57 per cent of the non-delinquents failing to succeed on this test were mentally deficient. On the other hand, of those succeeding, only 3 per cent of the delinquents and 1 per cent of the non-delinquents fell into that category. Furthermore, of those succeeding, 82 per cent of the delinquents and 88 per cent of the non-delinquents graded as normal.

In the tables are also included the doubtfuls, together with the successes and failures into which their scores were resolved.

TABLE 2

Performance of delinquents and non-delinquents on fables classified according to mentality (1898 cases)

I.Q.	90 AND ABOVE		80 TO 90		80 AND BELOW	
	Delinquents	Non-delinquents	Delinquents	Non-delinquents	Delinquents	Non-delinquents
	per cent	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*
Successes (928)	82	88	15	11	3	1
Failures (625)	17	17	27	26	56	57
Doubtful (Resolved) (345):						
Successes	39	75	51	18	10	7
Failures	38	42	36	30	26	28

These are given at their face value and were not taken into consideration in our conclusions. We do not believe that the recorded scores between 4 (twelve year success) and 8 (sixteen year success) are reliable. Moreover, our scale is only arbitrary and not borne out by experimental standardization.

It is interesting to note that there are 10 per cent more normals in the non-delinquent than in the delinquent group. In view of the apparent high correlation between mental normality and moral generalizations, this may account for

the slightly higher percentage of successes in the non-delinquent group.

It is clear, at least in regard to failures, that the ability to recognize a moral situation is no basis for the detection of

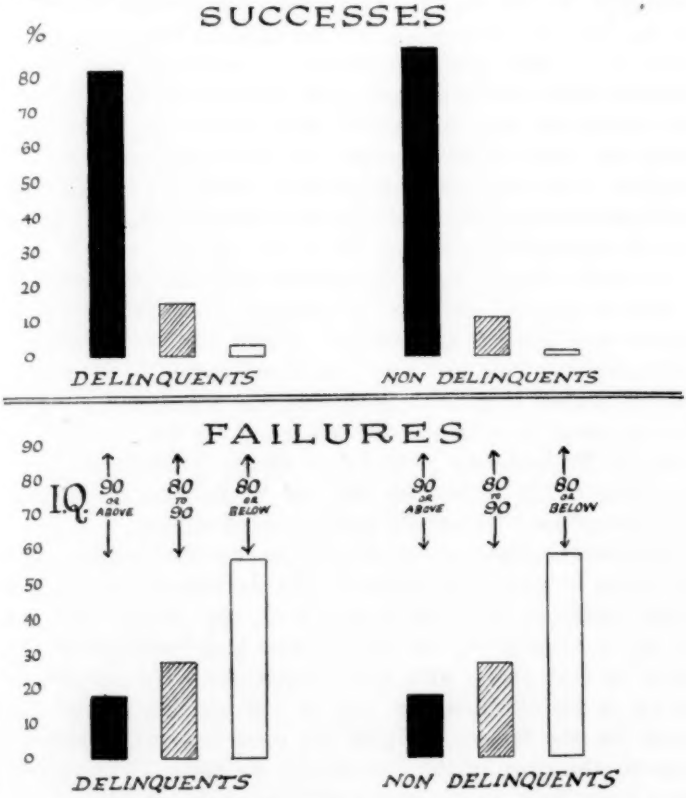

FIG. 1

delinquent and non-delinquent trends. This is shown in the practically parallel percentages for the two groups. The differentiation is one of *mentality*. Terman implicitly and perhaps intentionally agrees with our conclusions. In illustrating the performances of delinquent children, he quotes

only the responses of feeble-minded delinquents. We contend that feeble-minded *non*-delinquents would have ranked just as poorly.

This is well illustrated in the case of A. T., a girl of seventeen, who was referred to us for vocational advice. According to the Terman classification, she ranked as a high-grade moron (I.Q. 67). This girl was non-delinquent, and had shown, both at home and at school, good characteristics. Her score on the fables was 0. Asked what lesson we might learn from the story of *Hercules and the Wagoner*, she replied, "It teaches us to stay with the driver;" from the story of the *Milkmaid and her Plans*, all she learned was, "Teaches us not to spill our milk."

To take a less extreme example, we note the case of S. G., a sixteen year old girl who was referred to us for vocational advice and general adjustment. There was no question of delinquency. This girl was considered normal, but of poor mental ability (I.Q. 80). However, she scored but 2 on the fables, which is a failure for her age. To the story of the *Fox and the Crow* she replied laconically, "Selfishness;" from the story of the *Miller, his Son and the Donkey*, she deduced the lesson that "We should think more of others."

In direct contrast to the above cases, our files contain many examples of normal individuals with delinquent careers, who make excellent generalizations from the fables. We cite L. K., a colored boy of eleven, who had been stealing for three or four years, with bad companions. No insignificant factor in his obtaining an I.Q. of 100 was his sixteen year credit on the fables. Perhaps his most interesting response was to the story of the *Farmer and the Stork*. "You should keep away from people who steal," he replied glibly.

An analogous case is that of M. P., twelve, complained of because of excessive stealing and truancy and continued companionship with bad boys. This boy, of very good general ability (I.Q. 108), scored 6 on fables. To the fable of the *Milkmaid and her Plans*, he said, "Never think of what you're

going to have, before you get it," and to the *Farmer and the Stork*, "Never go with robbers, you'll get the blame."

It is needless to give further examples to illustrate this point, namely, that the ability to form moral judgments correlates very much more highly with general mental ability than with moral behavior.

From this critique of the fables, we are, of course, in no position to deny the *possibility* of a test of moral development. Our results do, however, make us suspicious of all tests having as their underlying principle the assumption that moral judgments offer a reliable estimation of moral integrity. We are convinced that verbal judgments of moral situations are an index of the individual's intellectual and social apperceptions and not his moral character.

THE FREE ASSOCIATION METHOD AS A MEASURE OF THE EFFICIENCY OF ADVERTISING

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The method of controlled association has been used in the investigation of advertising by Hotchkiss and Franken[1] and by Geissler[2] with such conclusive results as to suggest the desirability of testing the free association method as a measure of the strength of association between firm name or brand and product or to use the term employed by the first of the mentioned investigators, "mental dominance." Uncontrolled association was used by Heller and Brown[3] in studying car cards but their method was far more cumbersome and much more limited in its applicability than the controlled association method or the method about to be described.

The present experiment was conducted as follows. One hundred men and one hundred women students of Columbia University and one hundred men students of Dartmouth College and fifty men students of Harvard University were used as subjects. Each one was given a multigraphed list of twenty firm names each name being that of a manufacturer of a nationally advertised product, among them being five manufacturers of toilet articles. The following directions were read to each group:

This is an experiment in free association. Below are twenty names. Please look at each name and immediately write in the space following

[1] Hotchkiss and Franken. The Leadership of Advertised Brands. New York, 1923.

[2] Geissler, L. R. Journal of Applied Psychology, 1917, vol I, pp. 46-60.

[3] Heller and Brown. University of California Publications in Psychology, 1916.

the name the word or words that come to your mind. In some cases the ideas that come to your mind can be expressed in a few words. In other cases you may want to use a sentence or two or more sentences, in which case do so. You will have all the time you need so please try to give some response to every name. If any of the names remind you of nothing leave the spaces after them blank.

TABLE 1

Irrelevant responses and failures to respond

	BRAND				
	A	B	C	D	E
Columbia women	7	7	6	15	52
Columbia men	8	14	10	16	38
Harvard	2	7	2	13	3
Dartmouth	5	10	16	14	38
Total	22	38	34	58	131
Order	1	3	2	4	5

TABLE 2

Number of different responses

	BRAND				
	A	B	C	D	E
Columbia women	23	9	12	24	8
Columbia men	17	12	17	29	5
Harvard	14	8	8	13	4
Dartmouth	16	9	11	24	5
Total	70	38	48	90	22
Order	2	4	3	1	5

The responses to the names of the producers of toilet articles were tabulated with reference to frequency giving tables similar to those of Kent and Rosanoff.[4] The fifteen other names in the list were those of manufacturers of diverse pro-

[4] Kent and Rosanoff. A Study of Association in Insanity. Amer. Jour. Insanity, 1910.

ducts and the responses to them are not comparable. They were used to avoid a mental set which might have been established had only names of producers of toilet articles been used as stimuli.

This method as compared with the controlled association method seems to have the following advantages. First, the associations tested are the identical ones in which the advertisers have been drilling the buying public, that is, they are to be reproduced in the same direction in which they have been formed.[5] Second, this method gives in addition to a measure of "mental dominance," which is gotten by a comparison of the tables, one with another, an additional measure of the degree to which each of the products of any one manufacturer is known.

Assuming that the frequency of irrelevant responses and failures to respond is a measure of "mental dominance" the standing of the various brands is indicated in table 1.

Table 2 shows the variety of responses or the number of *different* responses given to each stimulus. Omitting D which is the name of a company marketing a great variety of pharmaceutical products in addition to toilet articles it will be seen that the order of frequency is the same as that for irrelevant responses and failures to respond given in table 1. At first it might seem that the number of different responses is determined by the number of products marketed by the company. This is not necessarily entirely so. However the present data do not conclusively determine this. Before further discussion it should be stated that these data were gathered for purposes other than those being discussed in the present report, which is only intended to be suggestive of the possibilities of the method.

Tables 3, 4 and 5 show the analyses of the frequency tables in regard to three products. Table 3 shows the frequency of the response "talcum powder" and its synonyms, and the order of "mental dominance" for each brand. Tables 4 and 5

[5] Adams, Henry Foster. Advertising and Its Mental Laws. New York, 1921, p. 181.

TABLE 3

Frequency of response "talcum powder"

	BRAND				
	A	B*	C	D	E
Columbia women	9	0	78	16	3
Columbia men	2	1	51	5	1
Harvard	0	0	35	5	1
Dartmouth	0	0	37	5	0
Total	11	1	201	31	5
Order	3	5	1	2	4

* Does not market talcum powder.

TABLE 4

Frequency of response "shaving soap"

	BRAND				
	A	B*	C	D*	E
Columbia women	2	0	12	0	43
Columbia men	21	0	41	0	56
Harvard	18	1	20	0	46
Dartmouth	29	0	37	0	61
Total	70	1	110	0	206
Order	3	4	2	5	1

* Does not market shaving soap.

TABLE 5

Frequency of response "tooth paste"

	BRAND				
	A	B*	C†	D	E
Columbia women	43	0	2	20	1
Columbia men	33	0	2	19	0
Harvard	27	0	1	15	0
Dartmouth	60	0	3	26	0
Total	163	0	8	80	1
Order	1	5	3	2	4

* Does not market tooth paste.

† Formerly marketed tooth paste.

show the same results in regard to "shaving soap" and its synomyms and "tooth paste" and its synonyms. Here then is a measure of "mental dominance" similar to that secured by other investigators. In an experiment where a measure of "mental dominance" was aimed at specifically there would be fewer zeros than in these tables for the names of manufactures of identical products would be used as stimuli. The measure of the degree to which each of the products of any one manufacturer is known is determined by the frequency of

TABLE 6

Stimulus—brand "A"

22	Tooth paste (and its synonyms)
20	Soap
13	Toilet articles
12	Shaving soap (and its synonyms)
6	Shaving cream and tooth paste
9	Irrelevant
5	Perfumes
3	Tooth paste, tooth powder, soaps and make-up articles
2	Powder
2	Tooth paste and other toilet articles
2	Shaving cream and other toilet preparations
1	Irrelevant and shaving cream
1	Soap and shaving cream
1	Irrelevant and perfumery
1	Toilet articles and a product recently marketed by the company and having a trade name
100	

the responses. Table 6 is one of the twenty frequency tables. At the top is the stimulus word, the name of the company or brand and before each response is the number showing how many of the hundred men subjects in the group gave each response.

A comparison of the frequency tables derived from the data gotten from the three groups of men shows no significant differences. As to sex differences the women show a slight tendency to give more than one response to a name, for ex-

ample instead of responding to the stimulus "Brand A" with "soap" they more often than the men respond "soap and other toilet articles." They also give a greater variety of responses and more irrelevant responses than the men. Also as might well be expected their frequency of responses is greater for the products more used by women and the same is true in regard to the men, for example, face powder and shaving cream.

The writer is grateful to Professor Starch of Harvard University and to Professor Moore of Dartmouth College for their assistance in gathering the data reported on here.

THE INFLUENCE OF FRIENDSHIP UPON PERSONAL RATINGS[1]

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While Rugg[2] lays down thorough acquaintance as one of the three essential conditions for reliable rating, Knight[3] concludes from an investigation, "It is in the direction of truth to discount the ratings of judges when acquaintance has been long." Acquaintance undoubtedly affects personal rating in two opposing directions: It means opportunity for close observation, at the same time it gives one a bias.

In a study on personal ratings, twenty-eight individuals who had been class-mates for at least three years were requested to rank one another with respect to friendship in addition to eight different traits (which were: *intellectual quickness*, *intellectual profoundness*, *memory*, *impulsiveness*, *adaptability*, *persistence*, *leadership*, and *scholarship*). For reasons which do not concern us here, the twenty-eight men were divided into four groups, each rating a combination of only four of the eight traits. And because two persons failed to turn in their ratings, our final data consisted of twenty-six series of ranks in friendship and thirteen series of ranks in each of the eight traits. Except those on friendship, the ranks were converted into scores in terms of standard deviations of a unit normal distribution, and ratings by judges of the same group on the same trait were averaged. The reliability for the average ratings ranged from

[1] Slightly modified from parts of a thesis written under the direction of Prof. Truman L. Kelley, to whom grateful acknowledgment is due for helpful suggestions and constant encouragement.

[2] Journal of Educational Psychology, XII: 425–438, 485–501, 1921, and XIII: 30–42, 80–93, 1922.

[3] Journal of Educational Psychology, XIV: 129–142, 1923.

0.62 for *impulsiveness* to 0.91 for *scholarship*, all except *impulsiveness* having a reliability well above 0.80.

If we take the average rating of an individual by the group as a criterion, and call a deviation therefrom of any individual rating an error, we can compare the errors with reference to varying degrees of friendship. Because our data show considerable grouping in the ratings of friendship, especially toward the lower end of the ranks, to keep all the twenty-seven different degrees would clearly be unprofitable. We shall therefore divide the ranks into five groups: 1–3, 4–8, 9–15, 16–24, and 25–27. To be sure, the division is arbitrary, but it is based upon the not unreasonable assumption that one has few very intimate

TABLE 1

	RANKS IN FRIENDSHIP				
	1–3	4–8	9–15	16–24	25–27
Intellectual quickness	0.38	0.45	0.39	0.38	0.41
Intellectual profoundness	0.42	0.39	0.39	0.41	0.50
Memory	0.43	0.47	0.47	0.47	0.49
Impulsiveness	0.62	0.54	0.59	0.52	0.61
Adaptability	0.53	0.57	0.53	0.56	0.73
Persistence	0.56	0.52	0.54	0.58	0.67
Leadership	0.44	0.36	0.39	0.37	0.47
Scholarship	0.42	0.30	0.40	0.41	0.51
Average	0.47	0.45	0.46	0.46	0.55

friends and more mediocre ones. The last small group is intended to provide for a few persons whom the judge may for any reason dislike in particular.

Table 1 gives the average errors of thirteen judges on each of the eight traits. It shows that with the possible exception of ranks 25–27, friendship has not affected the accuracy of the ratings in any consistent manner. Even in the case of ranks 25–27, the average errors are not larger than for the other ranks to a very significant extent. In groups like the present, then, where all members have been class-mates for at least three years, especially intimate friendship does not seem to render knowledge of one another more accurate.

We shall now turn to a consideration of the systematic errors, to see whether the judges tend to rate more intimate friends consistently higher or lower than they rate less intimate ones. Whereas in the previous case we call any deviation from the average rating an error, we shall now distinguish between plus errors as errors of overestimate and minus errors as errors of underestimate. Such errors are summarized in table 2.

Table 2 shows that with the exception of *impulsiveness*, there seems to be a consistent relation between friendship and tendency toward overestimation. Since the purpose of the study was explained and absolute confidence promised when the rating blanks were sent out, there is no reason to suppose that the

TABLE 2

	RANKS IN FRIENDSHIP				
	1–3	4–8	9–15	16–24	25–27
Intellectual quickness	+0.27	+0.12	+0.03	−0.13	−0.24
Intellectual profoundness	+0.26	+0.09	+0.03	−0.10	−0.12
Memory	+0.26	+0.11	+0.09	−0.12	−0.21
Impulsiveness	−0.06	+0.09	−0.10	+0.05	−0.10
Adaptability	+0.14	+0.16	−0.09	−0.04	−0.18
Persistence	+0.19	+0.16	+0.06	−0.14	−0.21
Leadership	+0.12	+0.10	+0.02	−0.09	−0.17
Scholarship	+0.20	+0.07	−0.05	−0.03	−0.17
Average	+0.17	+0.11	−0.02	−0.08	−0.18

tendency is due to conscious discrimination according to friendship. Rather, it is due to a genuine illusion. Our best friends occupy such a favorable position in our view that whenever we compare them with others, we are comparing, as of the fan-shaped figures of Wundt, a longer side of one with a shorter side of the other. The effect is inevitable.

However, it should be noted that the systematic errors are comparatively small. Large chance errors will still remain after a regression according to the systematic errors. When we conclude that there is a definite tendency toward overestimation according to friendship, we must remember that much the larger part of the errors is due to other unknown factors.

A SUGGESTION FOR AN EXPERIMENT ON THE EFFECT OF NOTE-TAKING IN LECTURE COURSES

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Experiments have definitely proved that memory can be improved through the recitation method. Educators had worked on this assumption long before experimental psychologists had discovered its truth by testing it objectively. In grammar schools, high schools, and many courses in the undergraduate work of colleges and universities classes are conducted on the recitation plan. But as one progresses more intensively in a field, the recitation plan gives way to the lecture course. This is especially true in colleges and universities and is becoming more and more widespread as the influence of the continental methods of education is felt in this country.

With the transfer from the recitation method to the lecture course there is a change in point of view as well as in the purpose of education. The recitation is a game whereby the instructor constantly tests the familiarity of the student with material assigned to be read. The lecturer pours forth floods of material every class hour, putting the responsibility for absorption more definitely upon the student. At frequent periods the test of assimilation of material is made by way of written examinations. In order that he may be sure to retain the material presented in lectures, the student early begins the habit of taking notes. It would be interesting to study different types of note-taking; students vary from those literalists who frantically write down each word as it falls from the lips of the speaker, to logicians who can reduce a whole lecture to outline form, and to symbolists for whom a single inventive diagram or schema may represent many complex ideas. There

are also the chaotic note-takers who are never quite certain what is important and what is not, and whose note-books are a jumble of principles, phrases and single words. And finally there is a critic whose notes on the lecture are only sufficient to enable him to evaluate it in his own way as he goes along. Unfortunately there are too few of the latter, for such note-taking presupposes a mature attitude with considerable knowledge of the subject matter.

The problem of note-taking is twofold: The responsibility of the instructor is not less great than that of the student. The instructor feels that if the student is going to take notes he should at least put down the essential and important points. It is also a challenge for clearness and lucidity, together with a certain succinctness. Dictation of definitions is often supplied. Note-taking for the student is often at first a real task until each works out his own system, and develops a quasi-automatic method. When this is accomplished a cycle is formed, the ideas flow from the lecturer to the student in the form of auditory perceptions, then into the neuromusculature resulting in words in the note-book. How deeply these paths are worn during the hour is of course a variable matter according to differences in individuals. It is not infrequent, however, for the student to trust a great deal to his pen and very little to his own associative processes. A review for examination then, means re-reading the notes and memorizing whatever appears to be important. The feeling of dread for examinations and sense of relief after they are finished is often based on the fear that this superficially assimilated material will not be retained during the examination period.

But is the real purpose of lecturing to fill notebooks so that students may "cram" for examinations? Is not the function of education rather, to provide the student with material for thought, to acquaint him with known facts, philosophies and theories, in order that he may live intelligently? In graduate courses the aim is most often the presentation of facts accumulated in the field so that the student may have a foundation upon which to build further and references for which to turn for

further information. Often the mere memorizing of these facts is not nearly so important as the developing of a method by which the student may know how to look for facts when they are needed.

But no matter which of these three purposes is in the mind of the lecturer, the means for accomplishing the end most quickly must be through securing maximum interest and attention since these are the "sine qua non" of memory.

Moreover to many lecturers, note-taking is distracting. One feels that the student is dividing his attention, especially is it annoying when one is conscious that his every word is being preserved. The effect on many lecturers is to heighten self-consciousness and detract from that spontaneity and vitality which helps so much toward making the lecture interesting and putting across the vital points.

With these ideas in mind the writer experimented during the summer of 1924 with a course in General Psychology given to graduate students at the Smith College School for Social Work. At the opening lecture the instructor told the class that she wished to carry out an experiment and asked for their co-operation. The plan announced was as follows: No student was to take any notes whatever during the lecture. At the end of forty-five minutes the lecturer would stop, and the class was then to outline in the remaining five minutes the main topics of the lecture.

The reactions of the students to the announcement were interesting. Some were greatly relieved, some quite panic-stricken since they had so firmly formed the habit of note-taking. But all agreed to give the experiment a fair trial. In order that the exercise be not too difficult at the beginning the lecturer wrote the main topics on the board as she went along. With each succeeding lecture fewer items were written out for the class. Often, however, principles were illustrated by diagrams, and wherever possible, visual as well as auditory material was given.

The effects of this system were twofold: The instructor felt freer and seemed to be more "in rapport" with the students than

during any previous summer. She was able to observe their expressions to gauge by their wrinkled brows spots of unclearness in her explanations, and to clear up what appeared to be murky places, which would have been lost had the students been intent on putting down words rather than trying to assimilate without props. The students were conscious of active attention. At first their post-lecture notes were meagre, and one or two older students, who had been out of college for many years, reported that they were completely blocked. At the end of four weeks the mid-term examination was given. The only notes which the student had for review were those made at the end of each hour, together with whatever notes they had taken on the collateral reading. One of the questions of the examination was, "What is your reaction to the 'no note-taking' experiment? In what way has it been a help or hindrance?" Below are samples of the replies to this question:

I. At the end of the lecture we have an idea of the scheme as a whole, not of a few details which have persisted during the process of note-taking. If there are portions I have not quite understood or appreciated their connection, I have looked them up in the book after the lecture, as they seem to stand out more clearly than when taking notes, when in the desire to get facts down, those not understood are not remembered. It is most helpful to have a brief outline on the board, then examples given can also be remembered even at the first of the experiment.

II. The "no note-taking" experiment at once gave me the feeling that the object of the course was background—not detailed pigeonholed knowledge. By not taking notes the main theme or backbone of the lecture is learned at the time with the important points in proper relation to one another and with little chance of substituting details or illustrations for primary points. However, there is a loss of attention to detail and illustration in the effort to keep a clear picture in mind of the salient facts in their logical relation to one another. This may perhaps be filled in by reading.

III. The experiment was difficult for me to adapt to at first, as a feeling of panic comes over one at the inhibiting of such a long established habit. However, I thoroughly approve of it, and believe that it accomplishes the desired results first by demanding more strict attention, not only to the words uttered, but to the idea behind the words, and second by fixing the material at once in the mind rather than the energy being expended in the effort of continuous writing. I should

think it would result in the covering of more ground per hour than under the other system. The system is apt to leave the mind with an outline impression of the whole mass of material rather than with a sprinkling of details which must later be organized. Sometimes I miss not being able to jot down, when it is uttered, a few words which seem to me to be a particularly apt expression of an idea, or which for some reason I believe will help fix this idea in my mind. By the time I try to recall it later, it is snowed under. This is, of course, only a minor objection.

IV. I have no settled opinion upon the no note-taking experiment. I think it tends to focus your attention, so that it is an aid to memory. However, you have a distressing feeling of unsureness when you get out your notes in order to study for "exams"—but this may be a benefit in that it tends to make you hunt out discussion on the topics you find you have barely outlined—rather than passively soak up information as you did under the old method of formal note-taking.

V. The experiment is vigorous, but worth the effort.

VI. I have no settled opinion upon the "no note-taking" experiment. I can get things clearer when I take notes and find the "no note-taking" a hindrance.

VII. "No note-taking" during lectures is pleasant enough during the lectures themselves, but not in preparing for an examination. The experiments and not the one, two, three, four reasons stand out clearly in my mind. This is evidenced by my answer to question three. I remember the chimpanzee and the button, the rat and the maze, but not concisely stated reasons. I think it is an advantage when the course is considered as a whole. But it is a hindrance to have to fill in the lectures from reading which does not present the subject just as it has been presented in class. The result is a few clear ideas, but not in an orderly arrangement.

VIII. I find the "no note-taking" a hindrance. As yet I have not benefited from the experiment. The definite hindrance has been:

a. The difficulty of attention during class, especially at that time of day (immediately after lunch).

b. The difficulty [illegible] ewing which a brief note now and then in outline form gives.

c. In an attempt to remember specific new technical phrases the attention becomes strained, split-up, and fixed on details rather than left free to take in the general ideas.

Of the thirty-five students who answered this question, twenty-two definitely declared themselves to have been more benefited than hindered (samples I, II, III, V), while in ten the replies did not indicate whether the student had been more helped or hindered (as in sample IV), while three felt that they

had been definitely hindered. These three are quoted in full VI, VII, VIII).

From the analysis of results obtained it would seem that a carefully planned experiment in the field of note-taking would prove of value. The class should be divided into two groups, one allowed to take notes in the ordinary way, as a control group, and the other asked to refrain from taking notes, but to sum up the lecture at the end of each hour. The students should be paired so that the groups might be as equal as possible in respect to such factors as intelligence and grade of work. It would then be possible to make comparison of grades received in the examination, as well as an analysis of introspective reports. When the course had been half completed (providing it were a full term course, and not a summer course), the two groups could be interchanged, so that those who had not taken notes before would now take notes, and vice versa. Thus comparison of the two methods, (*a*) within groups, (*b*) on the same individual, could be made.

It is of course true that all subjects would not lend themselves so readily to this experiment. Those courses in which a large amount of definite facts must be learned, as for example, anatomy or medicine, would not be suitable for such an experiment. In order to get the best results the following conditions must be met:

1. The lecture itself must be developed in a structural way, with each point clearly brought out and well illustrated.
2. Unfamiliar and technical terms should be written on the board.
3. Wherever possible, diagrams should be used to assist the memory.
4. The amount of time necessary at the end of each hour for note-taking should be determined experimentally.
5. Collateral reading on material covered by the lectures should be assigned.

The student should be urged to:

1. Outline the lecture as fully as possible.
2. Ask questions about any points not clearly brought out.
3. Look up any material which may appear vague.

THEORIES OF SELLING[1]

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There are undoubtedly many theories more or less active in the minds of sellers as to how to influence others to buy. But a perusal of the literature on the subject leads to the conclusion that there are only three general theories which are definitely formulated.

The first theory is expressed by the five words: "*Attention, Interest, Desire, Action, Satisfaction.*" There is implied in this theory that the prospect must successively experience the *conscious states* of attention, interest, desire, action and satisfaction. And the emphasis is put upon establishing these states of consciousness.

The second theory comes to the selling world from behavioristic psychology. All behavior according to this view can be expressed by the formula: "*Situation-response.*" The word "situation" comprises factors external to the individual and also factors within him. Thus, the remark, "Let's have a smoke," would be an external factor and the presence or absence of a desire to smoke would be an internal factor leading to the response of smoking or not.

The expression "*Appeals-Response*" has appeared frequently in the advertising world as a substitute for "Situation-Response." When either of these formulae is employed undue emphasis always seems to be laid upon the external factors; and the emphasis has accordingly been put upon determining which appeals will stimulate.

The third theory views man as a dynamic being. Whether man buys or not depends very largely upon the internal factors

[1] Read in part before the Western Psychological Association, August 8, 1924.

within him, summed up in the word "*wants*." Unless he wants he will remain unaware, or at least uninterested, in what the seller has to present.

Psychologists may not experience any difficulty in keeping both external and internal factors in mind when they use the expression "situation-response." But the layman without a broad grasp of the subject must apparently overlook one or the other: He can not keep both before him. As he naturally is interested himself in what he is presenting, namely, appeals to the prospect, it seems best to emphasize the internal factors in any formulation that is given to him as a guide in his thinking.

The words: "*Want-Solution-Action-Satisfaction*" express this third theory of selling. The emphasis is put upon the wants of the prospect and the seller's function is to guide the thinking of the prospect to the desired end of buying.

Consideration of each of these theories in more detail will help to make the above points clear.

SELLING EXPLAINED IN TERMS OF MENTAL STATES

E. St. Elmo Lewis formulated the slogan, "Attract attention, maintain interest, create desire," in 1898. Later he added the fourth term "get action." These four words represent four states of consciousness which must pass through the mind of the prospect before he will buy. In other words, if the prospect experiences attention, interest, desire, he will be more likely to act; and consequently an advertisement or sales talk must be planned to arouse these states in him.

Sheldon[2] is apparently responsible for adding the fifth term, "secure satisfaction." In his writings of 1905 and 1910 the term does not occur. In his correspondence course of 1911 he lists the "four states that occur in the mind of the customer in every sale" and then adds, "while these four mental states are sufficient for a sale, two more must be added for the purpose of business-building, namely, Confidence and Satisfaction." In

[2] A. F. Sheldon, The Science of Business Building, 1905 and 1910; Salesmanship, 1911; The Art of Selling, 1911.

his *Art of Selling* published the same year he lists satisfaction with the other four as "the successive steps in the process of a selling transaction."

This slogan of Lewis and Sheldon has had a very profound effect upon the selling world. At the time it appeared there was no clear and definite formulation of what was implied in selling. Books on selling and advertising were hardly more than a jumbled collection of opinions on a great variety of topics. The formula has caused order to come out of chaos.

The majority of articles and books written since 1907 have endorsed the slogan in one form or another. And many speeches before advertising men and salesmen clearly show its influence. The writer would estimate that 90 per cent of all those engaged in these fields are consciously or unconsciously influenced by this point of view.

Several writers have more or less stressed mental states without subscribing to the above five-step formula. Scott[3] writing in 1903 and 1908 believed that all the mental activities of man were involved in the process of buying, and discussed advertising under the chapter headings of: Attention, association of ideas, suggestion, fusion, perception, apperception, illusion, imagery, memory, feeling, instinct, will, habit, and the like. But Scott made no attempt to formulate a simple expression of the selling process. The same is true of another psychologist, Adams,[4] who wrote in 1916. Most of the material in his book appears under the chapter headings of sensation, attention, association, fusion, memory, appearance (feeling) and action. Adams states in his preface that "the behavioristic standpoint has been adhered to throughout" and any behaviorist could interpret his material from that standpoint. But the ordinary reader gets the point of view from his work, as well as from that of Scott, that mental states must be emphasized in selling. Eastman[5] organizes his material in Part I,

[3] W. D. Scott, Theory of Advertising, 1903; Psychology of Advertising, 1908.

[4] H. F. Adams, Advertising and Its Mental Laws, 1916.

[5] G. R. Eastman, Psychology of Salesmanship, 1916.

making the sale, under the following heads: (1) pre-approach (*a*) investigation and (*b*) preparation; (2) approach and securing attention; (3) solicitation, (4) objections and (5) closing. Parts II and III are then devoted to the processes of thinking, feeling and action. Hess[6] discusses a formula in his 1915 work but devotes little space to it. Instead he presents chapters after the order of the above on: sense experience; instincts; imagination; memory; attention; desire; habit and inhibition; and getting the will of the crowd. In his 1923 work there is no reference to the formula or to the above psychological topics. Most of the book is devoted to the personality of the salesman and the buyer.

Substitution of "Conviction" for "Desire"

Many writers have emphasized that an intellectual rather than emotional state of mind is the key to action and have substituted words like "conviction," "confidence" or "judgment" for "desire" in the slogan of Lewis and Sheldon. Thus The Little Schoolmaster[7] wrote in 1910, "Most of those who have attempted to outline the proper arrangement of a complete advertisement—that is, an advertisement that embodies all the functions—seem to follow about this order: attract attention, develop interest, produce conviction, induce action." The International Correspondence School Text on Advertising substitutes conviction and confidence for desire. But in their text on Selling[8] there appears this formulation: (1) preparation for approach, (2) approach (with no emphasis on getting attention), (3) building up the interest, e.g., "demonstration of the practicability of the proposition, making the customer understand why he should buy," (4) closing, (5) maintaining the sale and holding the customer.

[6] H. W. Hess, Production Advertising, 1915, Creative Salesmanship, 1923.

[7] Printers' Ink, December 1, 1910, p. 74.

[8] International Correspondence Schools, The Conducting of Sales, 1911.

Hall,[9] 1915, substitutes confidence and conviction for desire. In 1924 when addressing salesmanagers instead of advertising men he presents: attention, interest, demonstrate, clear up details and doubts, action. Osborn[10] uses the word "judgment" for that of "desire," giving the four-word slogan: attention, interest, judgment, action.

Kitson[11] keeps the word "desire" but inserts between it and "action" the word "confidence." His entire book is based directly on this six-word slogan. Ramsay[12] adds "caution" in a similar way giving the formula: "attention, interest, desire, caution, action." But unlike Kitson, he almost completely ignores it throughout his book.

Still another variation is: "attracting attention, creating desire, removing inhibitions, inspiring confidence, impelling to action."[13]

"Satisfaction" is not always included in the formula

It is not surprising that in the years immediately following Sheldon's addition of the word "satisfaction" to Lewis' formula, the word satisfaction should be omitted because at that time the objective of selling was still viewed by nearly all as merely to secure a sale. But as the years have rolled by more and more sellers have come to see that the objective of selling is not a single sale but a customer. The word satisfaction should consequently be included in any formula in order to emphasize this new objective. But many authorities have not seen this point, apparently.

The George Batter Agency is credited with the slogan: "To be seen, read and believed." Hall in 1915 added "to be remembered" and gives this four-term slogan again in his hand-

[9] S. R. Hall, Writing an Advertisement, 1915; The Advertising Handbook, 1921; Handbook of Sales Management, 1924.

[10] A. F. Osborn, A Short Course in Advertising, 1922.

[11] H. D. Kitson, The Mind of the Buyer, 1921.

[12] R. E. Ramsay, Effective Direct Advertising, 1921.

[13] "The Five Steps of a Sale," Published by the West Coast Life Insurance Co., 1920.

book in 1921. Starch[14] makes considerable use of the slogan in this form, expanded by him to: "Must be seen, read, believed, remembered, acted upon." Another expression in similar form is credited to H. C. Sheppard,[15] namely, "Make 'em look, like it, learn, and then land 'em."

Although Neystrom,[16] Whitehead,[17] Sloan and Mooney,[18] Blanchard,[19] Ruxton,[20] and Herrold[21] recognize the value of good will, they do not include the word satisfaction in their formula and present only the four-word theory—attention, interest, desire and action. Hess,[22] 1915, applies the formula to only those customers who have no desire for the goods. He adds the word "possession" after "action," but not the word "satisfaction."

An interesting deviation from the formula appears in *Knack of Selling*.[23] The salesman is told: (1) to gain attention, (2) to hold interest, (2) to keep command over the trend of the interview and (4) to keep the canvass going that makes the prospect want your goods, arouses the motive that makes him willing to buy them and closes the order.

Expansion of the formula

The slogan is carried to its fullest extent in the *Selling Process* by Hawkins,[24] Sales-manager of the General Motors. A very brief outline of the book follows:

[14] D. Starch, Principles of Advertising, 1923.
[15] C. C. Sheppard, He Capitalizes the Personality of His Product, Printers' Ink Monthly, July, 1921, p. 49.
[16] P. H. Neystrom, Retail Selling and Store Management, 1915.
[17] H. Whitehead, Principles of Salesmanship, 1917.
[18] C. A. Sloan and J. D. Mooney, Advertising the Technical Product, 1920.
[19] F. L. Blanchard, The Essentials of Advertising, 1921.
[20] R. Ruxton, Printed Salesmanship, 1922.
[21] L. D. Herrold, Advertising for the Retailer, 1923.
[22] H. W. Hess, *op. cit.*
[23] H. Watson, Knack of Selling, Book II, 1913.
[24] N. Hawkins, The Selling Process, 1918.

a. Preparatory steps:
   1. Preparation, Chapter IV
   2. Prospecting, Chapter V
   3. Approach and audience, Chapter VI

b. Presentations steps:
   1. Sizing up the buyer, Chapter VII
   2. Gaining attention and awakening interest, Chapter VIII

c. Convincing steps:
   1. Persuading and creating desire, Chapter IX
   2. Handling objections, Chapter X

d. Closing steps:
   1. Securing decision and obtaining signature, Chapter XI
   2. Get-away and lead to future orders, Chapter XII

Hawkins recognizes three stages of attention: (1) compulsory attention, (2) curiosity to some degree and (3) intentional or spontaneous attention; and three stages of interest (1) attentive interest, (2) associating interest, and (3) personal interest. He insists that the prospect must be taken through all these six stages before he reaches the state of desire. Regardless of whether this is true or false the writer is certain that no salesman ever can identify these six stages as they are experienced by a prospect; and no salesman ever does or can say to himself, "Now he is in stage three of attention; I must get him into stage one of interest."

Although Hawkins' book is based on this formula the writer is convinced from studying it, especially Chapter IX, that Hawkins' point of view belongs under the third theory where wants are emphasized, not states of mind. But he has clearly attempted to fit his views into this formula of attention, interest, desire, action, satisfaction.

Emphasis upon this formula decreasing

Judging from a perusal of recent literature interest in this theory is dying out to some extent. Several books like those of Sloan and Mooney on *Advertising the Technical Product*, 1920; Blanchard, The *Essentials of Advertising*, 1921; Ramsy, *Effective Direct Advertising*, 1921; Ruxton, *Printed Salesmanship*, 1922; and Herrold, *Advertising for the Retailer*, 1923; devote

only a few pages to the subject. These writers outline what is to be done and how to do it. Whatever theory they have is practically excluded from their works.

Nearly all authorities still emphasize "attention" and "interest"

Although many authorities do not include the work "satisfaction" in their formulation and some writers employ "conviction" for "desire," yet all insist that "attention" and "interest" must be present and must come first.

It is true that attention and interest must be present whenever a prospect does buy. But it ought to be equally apparent that these mental states are not the goal that the seller desires to reach. Instead, the seller should aim to establish certain ideas and feelings relative to what the buyer can get out of his goods. The mistaken emphasis is responsible for many a poor advertisement and for many a poorly introduced sales presentation.

SELLING EXPLAINED IN TERMS OF APPEAL AND RESPONSE

Hollingworth[25] gives his book the sub-title, "Principles of Appeal and Response," indicative of his behavioristic point of view. Chapters I, XIII, XIV, and XV discuss the various appeals that will produce a buying response. Much space is devoted to the question as to which appeals are the strongest. The remainder of the book considers four tasks of the advertiser or seller: namely, catching the attention, holding the attention, fixing the impression and provoking the response. The theory is apparently that if the proper appeal is presented and the prospect gives it his attention, the desired response will result, especially if the process is skilfully handled.

Hollingworth makes clear to the discerning reader that the strength of an appeal is dependent upon the prospect's own instinctive and habitual ways of acting. In other words, appeals are good or poor depending upon the internal factors affecting the individual at the time. But the ordinary reader does not get this subtle point.

[25] H. L. Hollingworth, Advertising and Selling, 1913.

Parts II, III and IV of Starch's book[26] are concerned with a study of the prospect, the appeals that can be made to him, and the presentation of those appeals. His whole work stresses the necessity of determining what appeals will be most effective in selling a particular commodity to a particular class of prospects.

So long as emphasis is put upon appeals—external factors presented by the salesman—just so long there remains the problem of making the prospect pay attention and become interested. This is true because the emphasis remains upon causing the prospect to become interested in what the salesman has to say instead of the seller adapting himself to the prospect and presenting to the buyer what he desires.

It is most natural then that both Hollingworth and Starch should continue to emphasize the getting of attention and interest. It is difficult, in fact, to get away from this point of view. The present writer tried very hard to do so but with imperfect success in his book on *Psychology of Selling Life Insurance*.[27]

The discussion in this book is presented under two main heads: The strategy and the tactics of selling. Strategy covers the preapproach or preparation for selling; tactics, the execution of the sales plan when face to face with the prospect.

The strategy is viewed as involving five steps. First of all, the prospect must be analyzed in order to discover his interests, desires and needs. Second, the appropriate insurance to fit his case must be decided upon. Third, the convictions that the prospect must have before he will buy must be determined, and fourth the impulses (wants) that he must be conscious of before he will buy must be determined. Fifth, the salesman must decide what appeals he must make to the prospect so that he will establish the necessary convictions and arouse the necessary impulses and so cause the prospect to buy.

The view held here is that if a given prospect becomes finally possessed of certain convictions and certain impulses he will respond by buying. Furthermore, to get these convictions and wants into the prospect's mind the salesman must

[26] D. Starch, *op. cit.*, 1923.

[27] E. K. Strong, Jr., Psychology of Selling Life Insurance, 1923.

present (1) ideas to establish the convictions and (2) incitements (words arousing desire) to arouse the wants. What the salesman presents are appeals or stimuli and all the wants and convictions that come to mind within the prospect are motives for buying, tending to cause the response.

There is a frank recognition in this theory that the prospect will not buy until he is possessed of certain ideas and wants; that these must be guessed at by the salesman and that then he must cause them to possess the mind of the prospect. Although the writer is still convinced that this is sound psychology he is now certain that the theory as outlined above is too complicated for the *average* salesman to comprehend or use.

SELLING EXPLAINED IN TERMS OF WANT AND SOLUTION

In the section of the work of Tipper, Hollingworth, Hotchkiss and Parsons[28] devoted to a discussion of the theory of selling appear these five main heads:

1. Fundamental needs of man.
2. The commodity.
3. The establishment of association between commodity and need—the creation of mental habits of such a sort that the feeling of the need at once suggests to the mind of the individual the commodity in question.
4. The making of the association dynamic.
5. The securing of vividness of impression.

The emphasis here is upon what the prospect wants or needs and the aim of advertising is to associate this need with the seller's goods. The starting point is what is in the mind of the prospect, not appeals to be put into that mind. This sounds a new note in selling literature. But for some reason little attention has been given it.

Charters[29] pictures the prospect having a need to be satisfied or a problem to be solved. He defines the art of retail

[28] H. Tipper, H. L. Hollingworth, G. B. Hotchkiss, F. A. Parsons, Advertising, 1915, Chap. IV.

[29] W. W. Charters, How to Sell at Retail, 1922.

selling as the art of helping the customer to define his need, and to select the articles which will satisfy that need. The five steps of purchasing, according to Charters, are:

a. The customer tries to get a clear idea of what he wants.

b. He looks at many articles which might possibly satisfy him.

c. He studies these in the light of his standards.

d. He selects the one which seems to meet them best.

e. He sizes up his purchase and experiences a feeling of satisfaction or of dissatisfaction.

Here we have a picture of selling where the prospect is very active because he has a want to be satisfied and the salesman's job is to aid the prospect in his endeavors to solve his problem. The emphasis is quite different from that expressed in the other two theories of selling.

In Herrold's[30] text are to be found passages supporting all three of the theories discussed here. No one can read his work, however, without appreciating his emphasis upon the buyer's wants. Thus, under the heading "Adopt the customer's viewpoint" he says:

> It follows, then that in determining what to say about the goods, merchandise should be looked at from the buyer's viewpoint: that in advertising, as in selling across the counter, it is necessary to show the person who is being influenced how the goods will benefit him. When selecting the selling points, think why the reader should buy the article. Study it from his standpoint. Why whould he want it? What needs of his will it satisfy? What will it do for him?

The present writer has formulated a theory of selling in terms of Want, Solution, Action and Satisfaction.[31] Selling with such a formula in mind becomes a process of calling to the prospect's mind some one or more of his wants and then showing how they may be satisfied by buying the seller's goods. The term "action" implies that the seller must more or less force the issue at the end; also that the prospect must not only buy but

[30] L. D. Herrold, *op. cit.*

[31] E. K. Strong, Jr., Psychology of Selling and Advertising, in press.

use the commodity, and that the seller must make sure he can and will use it correctly. "Satisfaction" is, finally, most important, because unless the goods measure up to expectations there will be no repeat orders.

When "want" is emphasized first, "getting attention and interest" ceases to be a major problem

Whenever one of a prospect's wants is called to his mind, his attention and interest are automatically secured, and are essentially relevant. Consequently, the terms attention and interest can be eliminated from selling and advertising literature. In every case, the problem reduces itself to: "What wants does he have? How can I get them into his mind?"

There remain a number of minor problems that have always been discussed under the headings of getting attention and interest. They had better be considered from other angles. "How to introduce oneself," "Whether to shake hands," and all the rest belong under such a heading as "Starting the Interview." And problems of "Size of the advertisement," "Eye-movement," "Balance," "White-space" belong under such a heading as "Layout" or "How to present the proposition in the best manner."

NOTES AND NEWS

COMMEMORATIVE MEETINGS IN MEMORY OF G. STANLEY HALL AND EDMUND C. SANFORD

Last year Dr. Sanford made plans for a series of commemorative meetings in honor of the life and work of Dr. Hall and this plan included scientific conferences to be participated in especially by the alumni of Clark University actively engaged in research in genetic psychology.

On account of the death of Dr. Sanford, which occurred November 22, 1924, it seemed best to the Committee to include in this series of meetings a commemoration of Dr. Sanford as well as of Dr. Hall. The following program shows the scope of the meetings:

Chairman: Colin A. Scott, Ph.D., Professor of Education, Mt. Holyoke College.

Commemorative address for G. Stanely Hall, by the Chairman.

Commemorative address for Edmund Clark Sanford, by Mary Whiton Calkins, Ph.D., Professor of Psychology, Wellesley College.

Reading of letters from friends and former students.

Informal addresses by alumni of the University.

Founder's Day Exercises

Chairman: Wallace W. Atwood, Ph.D., President of Clark University.

Address "Changing Ideals of Education," by Frederick C. Ferry, Ph.D., President of Hamilton College.

Scientific Meetings

The Curiosity Theme in Norse Folklore, by Albert N. Gilbertson, Ph.D., Malden, Mass.

The Biography of a Nine Months Old Infant, by Edgar James Swift, Ph.D., Professor of Psychology, Washington University.

Subject to be announced, by Wolfgang Koehler, Ph.D., Professor of Psychology, University of Berlin.

Wanted: A Theory of Child Play, by George E. Johnson, A.M., Professor of Education, Harvard University.

Tactual Interpretation of Speech, by Robert H. Gault, Ph.D., National Research Council, Washington, D. C.

A Clinical Psychology of Infancy, illustrated by stereopticon, by Arnold Gesell, Ph.D., Professor of Child Hygiene, Yale University.

Some Human Factors in Mental Measurement, by James P. Porter, Ph.D., Professor of Psychology, Ohio University.

Genetic and Experimental Psychology in Relation to the Public School Clinic, by George E. Dawson, Ph.D., Professor of Psychology, Springfield College.

The Genetic Method in Present Day Psychological Research, by William F. Book, Ph.D., Professor of Psychology, Indiana University.

The special memorial meeting on Sunday afternoon consisted not only of the special addresses in honor of Dr. Hall and Dr. Sanford, but letters from alumni of the institution were read including most remarkable tributes to the inspiring personality and pioneer work of Dr. Hall and the remarkable character and work of Dr. Sanford as teacher and investigator.

While conditions prevented the presence of two or three speakers, the scientific conferences included the account of some remarkable contributions to genetic psychology, and the whole series presented an appropriate scientific memorial of the life and work of Dr. Hall.

NATIONAL RESEARCH COUNCIL

The division of Anthropology and Psychology has several very active committees:

1. That on State Archaelogical Surveys has been remarkably successful in arousing interest in quite a number of states in their local Indian remains.

2. That on Scientific Problems of Human Migration is now completing its second year of active work. In this are enlisted a large number of investigators in different parts of the country, working partly for the development of test methods that are applicable to subjects of various cultural backgrounds, partly upon race characteristics and the effect of race mixtures.

3. That on Vestibular Research is bringing together a group of investigators working at different phases of the problem of the inner ear.

4. The committee on the possibility of teaching the deaf to perceive vocal sounds through skin stimulation, and its investigator, Dr. Gault, have good hopes of making a real contribution to the welfare of deaf people.

5. Several committees have to do with problems of personnel. The latest achievement of the Committee on Personnel Research is the preparation of the new college entrance tests which have been given to many thousands of students the current year, and the returns from

which are now to be thoroughly worked over. The Committee on College Student Personnel has formulated a feasible scheme for cooperation between colleges in the research necessary before suitable vocational advice can be given by college advisors to graduating students. The Committee on the Gifted Student Problem is keeping up a steady effort to improve conditions in the colleges for the gifted student by the development of honors courses and by giving the student a perspective of the opportunities in research for a career.

6. A new committee on the Psychology of the Highway has just begun operations. It will coöperate with state and national bodies interested in the reduction of automobile accidents.

A preliminary gift of $3,000,000 for the endowment of the John Simon Guggenheim Memorial Foundation Fellowships was announced recently by Simon Guggenheim, former United States Senator from Colorado, and his wife.

In a statement explaining the purposes of the Guggenheim Fellowships, Simon Guggenheim said: "I want to supplement the great Rhodes Foundation by providing a similar opportunity for older students of proved ability, and for women as well as men. Furthermore, I want to make it possible for these persons to carry on their studies in any country in the world where they can work most profitably."

The Foundation is a memorial to the son of Senator and Mrs. Guggenheim, who died on April 26, 1922. The Foundation offers to young men and women world wide opportunities under the freest possible conditions to carry on advanced study and research in any field of knowledge, or opportunities for the development of unusual talent in any of the fine arts including music.

No age limits are prescribed. Appointees, however, must be old enough to have shown marked ability in their particular subject. It is expected that ordinarily they will not be younger than 25 or older than 35 years.

The amount of money available for each fellowship will be approximately $2500 a year, but may be more or less, depending on individual needs.

While appointments will be made ordinarily for one year, plans which involve two or three years' study will also be considered and in special cases fellowships will be granted for shorter terms with appropriate stipends.

The Joint Information Bureau in Moscow is in constant communication with most of the scientific and cultural establishments and institutions of the Soviet Union and is in a position to facilitate regular contact as well as an exchange of scientific periodical and non-period-

ical publications between the interested institutions, groups and individuals of the Soviet Union and the other countries. Personal exchange of their works between scientists engaged in similar research activities could also be arranged as well as the publication of unpublished manuscripts and articles in the general periodical and special press.

At the request of the Joint Information Bureau in Moscow the Russian Information Bureau in Washington has undertaken to represent the Moscow Bureau in its endeavors which will no doubt be in the mutual interest of both countries.

The interested institutions, organizations and individuals may apply to the Russian Information Bureau, 2819 Connecticut Avenue, N.W., Washington, D. C.

The Eyesight Conservation Council of America, Times Building, New York City, announces that it is prepared to furnish lantern slides and lecture material on eyesight conservation at a nominal price to those who can make good use of such material with classes of students and other groups who would profit by and be interested in such information. While the Council desires to avoid indiscriminate free distribution and use of its material, it will lend the slides without fee to those without available funds.

Dr. A. J. Snow, of Northwestern University, is now devoting most of his time to consultation work in connection with the selection of taxi-cab drivers, with offices at the Yellow Cab Company, 57 East Twenty-first Street, Chicago.

Clark University recently announced the election of Dr. Walter S. Hunter to the G. Stanley Hall Chair of Genetic Psychology. Dr. Hunter, formerly Professor of Psychology at the University of Kansas, will begin his work at Clark at the opening of the next academic year.

BOOK REVIEWS

M. V. O'Shea. *The Child: His Nature, and His Needs.* The Children's Foundation, Valparaiso, Ind. Pp. 516.

This contribution of the Children's Foundation is a volume of 500 pages of joy for the one interested in child welfare and social progress. It is "A Survey of the Present Day Knowledge Concerning Child Nature and the Promotion of the Well-being and Education of the Young." The volume indicates an awakening in child education. Men and women have been selected to contribute to this volume who are familiar with the problems of the parent, the teacher, and the social worker. In the problem assigned them they have had full freedom to express themselves as they wished. Each chapter is very brief and to the point.

In Part I, which is a discussion of the present status of our knowledge of child nature, Dr. Baldwin gives a good view of the way in which the gap between our knowledge of child nature and the training of school children may be bridged. Miss Whitley of Columbia University gives us a clear picture of the child's instincts and impulses. She says that the child needs direction and not suppression; that the growth of children is a significant study for the educator, and that we must keep in mind the development of the child's motor control. Dr. Dearborn's chapter on the development of intellect in childhood and youth deals chiefly with the intellectual development as a whole in connection with the individual organism from the physical standpoint. The chapter on the child's moral development written by Mr. Neumann is of great value to the social worker who wants to gain a real insight into the impulses of the individual. Mr. Bolton has given a valuable picture of the social traits of childhood and youth. The teacher will find much help in the chapter written by Dr. Kirkpatrick. He includes in his study language, drawing, and music as the child's mastery of the arts of expression.

Part II deals with the present status of our knowledge of the child's well-being. Dr. Goddard discusses the need of bridging the gap between our knowledge of the child's well-being and the care of the young. Every chapter in part II is valuable to the educator interested in the care and treatment of exceptional children. Dr. Goddard says, "There is much yet to learn but we already know enough, if we put it into practice, to transform civilization within a generation or two." Dr. Emerson shows a wonderful insight into the need of scientific control of

nutrition. He says that improved nutrition brings increased power of mind into operation. Mr. White of St. Elizabeth's Hospital, Washington, discusses nervous and mental hygiene. He says that the child is not a small adult but is a different being and must be treated accordingly; and also that children are not alike but different from one another. To the nurse as well as to the teacher the chapter on sense defects by Professor Winslow of the Yale Medical School is very valuable. The subject of delinquency is discussed by Dr. Healy. He says that in the treatment of delinquency both the child and the environment must be considered. Dr. Arnold Gesell discusses the care of intellectually inferior children, and Dr. Leta S. Hollingworth, intellectually superior children. Dr. Winfield Scott Hall discusses the hygiene of the adolescent. He offers a suggestion which would be valuable to the educator of the child of that age.

Part III includes the study of the present status of our knowledge of education. Hon. J. J. Tigert, United States Commissioner of Education, discusses the need of bridging the gap between our knowledge of education and our educational practice. Dr. O'Shea contributes five chapters to this large volume of study. They are: Changing Objectives in American Schools, Changing Courses of Study, Changing Methods of Teaching and Management, Promoting the Health and Physical Development of School Children, and Extending Educational Facilities, Opportunities and Requirements.

We owe much to the trustees of the Children's Foundation for providing funds which have made this contribution possible.

M. LaVinia Warner,
Ohio University

Second International Congress of Eugenics, Vol. I, *Eugenics, Genetics and the Family;* Vol. II, *Eugenics in Race and State.* The Williams & Wilkins Company, Baltimore, Md. Vol. I, 438 pp., Vol. II, 472 pp.

The two volumes containing the addresses and scientific papers given at the Second International Congress of Eugenics compose an authoritative study of present knowledge and theories concerning the important fields of eugenics and genetics. The papers are individually analytical in treatment and informative in context. As reference books they are invaluable; as a source of general information and interesting reading in the important field of race character and betterment, they could not well be surpassed.

The Congress was truly international in character, and in his address of welcome Henry Fairfield Osborne says, "I doubt if there has ever been a moment in the world's history when an international conference on race character and betterment has been more important than the present."

The volumes contain papers of both a genetical and eugenical nature. Genetics is a pure science dealing with the laws of heredity; eugenics is an application of the laws of genetics to human mating for the benefit and improvement of the race.

Volume I contains papers dealing with the relation of eugenics and genetics to the family. They approach the question from two viewpoints; first, the results of animal experimentation, and secondly the statistical evidence from family and social groups.

The work of the geneticist is experimental and scientific; in eugenics conclusions are drawn chiefly from statistical evidence since it is difficult to experiment in the field of human genetics. Pages 29 to 242 of Volume I contain papers giving the results and conclusions of the best-known investigators in genetics and range from studies of inheritance in unicellular organisms to inheritance of mental diseases and disorders. The complete knowledge and beliefs of current thinkers in this important field are found here.

The latter part of this volume contains reports of biological researches on families, an application of the principles of genetics to human mating. Particular families are discussed, showing the effects of inbreeding, of mating with adverse types; of disease, of differential fecundity; of attempts at control of mating. Such subjects as "Is Inbreeding Injurious," "The Effect on the Germ Plasm of Isolation in a Mountain Section," "The Oneida Community Experiment in Stirpiculture," are typical of this section of the book.

As a whole the treatment is scientific and thorough but written so as to be easily intelligible to the popular mind. Scarcely greater wealth of interesting fact and authoritative theory could be compiled in one volume.

Twenty-four plates of illustrations, tables and drawings lend interest and clearness to the volume.

Volume II contains papers showing the value of eugenics to the race and state. The world's foremost Eugenicists and Anthropologists contribute to this volume. This volume alone would have justified the appellation, "an International Scientific Race Congress."

Physical differentiation between races is emphasized in the beginning. Particular races are described and comparisons made. Relationship between weight and stature is shown among other things.

"Harmonic and Disharmonic Race Crossings," by Dr. Jon Alfred Myxen, and "Hybridization and Behavior," by E. M. Vicari, are typical of the many interesting papers in this section.

Major Leonard Darwin, English Eugenicist, then introduces the next section by a stirring address, "The Field of Eugenics Reform."

Population as a factor affecting the race is then ably discussed by expert investigators of the question.

Selective elimination, control of parent-hood, and sterilization are authoritatively treated by specialists in the field.

The relation of eugenics to disease, to education, to inheritance, and to society is critically analyzed by the foremost authorities. The reader has thus at his command the facts of genetical research combined with statistical evidence and specific examples in the field of Eugenics.

Twenty-four plates of illustrations in this volume add to the interest. Combined, these two volumes are indispensable in a reference library and are extremely interesting and profitable for general reading.

EMMETT ROWLES,
Ohio University.

LUCIEN LEVY-BRUHL. *Primitive Mentality.* New York, The Macmillan Co., London, George Allen and Unwin, Ltd., 1923. 458 pp.

This volume may be looked upon as an application of psychological principles to the study of ethnographic data. Professor Levy-Bruhl attempts an investigation of the character of the primitive mind as it is revealed and operates in the various activities of primitive peoples from practically all locations on earth. As a basis for his studies the author proceeds upon the excellent assumption that before studying the primitive mind it cannot be defined as a rudimentary form of our own; so that one may conclude at once that it is childish and almost pathological. Instead, he assumes that the primitive mind is normal under the conditions in which it is employed and further more that it is both complex and developed.

Notwithstanding this laudable hypothesis with which Professor Levy-Bruhl approaches his task the results reached by our author from the psychological study of primitive action is that there are decided differences of a fundamental sort between primitive and civilized mentality. Briefly, the primitive mind is essentially mystic and prelogical. Primitive man is not interested in natural causes but is entirely occupied with a world in which occult powers prevail.

That primitive man is much occupied with the occult and the mystic is in no wise to be denied, but that this means that primitive mentality represents a unique form of psychological functioning entirely different from our own is an interpretation that has never been validated. To believe that primitive mentality is fundamentally different from our own is to overlook the myriads of instances of mystic and prelogical mental action performed by persons in all complex civilizations. Not even the most perfect of our sciences are immune to occult and mystic thought.

J. R. KANTOR,
Indiana University.

CLARK L. HULL. *The Influence of Tobacco Smoking on Mental and Motor Efficiency.* Psychological Monograph, No. 150. Psychological Review Company. Pp. 161.

In the first chapter of this study the author presents, though briefly, a summary of previous outstanding investigations of the effects of tobacco smoking. He selected the pipe as the medium of experimentation. The work is predicated upon an ingenious control device, a thing that has presented great difficulty to other investigators. The method of procedure is empirical throughout. Smokers have been distinguished from non-smokers and interesting parallels have been drawn between the two types of performance.

The study is effected by the use of tests designed to show how smoking affects, 1. neuro-muscular processes, 2. sensory motor processes and 3. higher mental processes. For each group a series of twelve tests is given. The series is repeated four times daily including the "normal for the day." A special program for alternation of smoking and control performance was devised. In three of the twelve forms of behavior investigated, the positive effects of smoking are evident. Two of these are physiological processes (pulse rate and muscular tremor), and the third (addition), a psychological process. Results of other tests show a fair degree of reliability in pointing to tobacco effects and are entitled to consideration.

The work will, no doubt, be followed by many others before the psychological effects of smoking are fully established. The author has proved himself to be both an accomplished statistician and an able investigator. He has dealt with involved data and has succeeded in giving them a lucid presentation. His plant for conducting the inquiry was carefully devised. The data have been fully and capably handled and conclusions have been skillfully and adequately drawn. Had the repeated test been placed not so far apart in the recurring test periods, or had the specific tests been greater in number, the continuum of tobacco effects might have been more adequately presented. But this was evidently a laboratory difficulty of which any laboratory technician or experimenter is aware. Withal, the work is well executed and will undoubtedly take its place in the scientific literature upon the subject.

ROBERT L. BATES,
Virginia Military Institute.

MAURICE URSTEIN. *Leopold and Loeb.* Pp. 132. Chicago Medical Book Co., Chicago, 1924. Illustrated. $2.50 (paper cover).

A re-arrangement of the author's descriptions of what he terms *catatonia* (what Bleuler terms schizophrenia) is given from his previous monographic publications and incidents from the court-room behavior

and developmental life of the two murderers used to show how they were presumably driven by the same psychosis.

Aside from the title Leopold and Loeb are very incidental figures. No attempt has been made to relate the case to psychoanalysis.

WILLIAM MARCUS TAYLOR, A.B., PH.G., B-P.D. *The More Abundant Life, or Bio-Psycho-Genetics.* Brandon, Nashville, 1924. Pp. lvi + 195.

I am not very certain that I have been able to find what this is all about. Mr. Taylor has not only hitched his book to the stars, but to about every philosopher and scientist of renown that the world has known. The climax seems to be reached, however, in announcing a series of twenty books on Bio-Psychology. These books are used as texts in the correspondence courses given—for a fat fee—by the Taylor School of Bio-Psychology, Inc., Chattanooga, Tennessee, upon the satisfactory culmination of which the Doctor's degree is awarded. To think that there are twenty more like this!

One gets the impression that this is the book for which the ages have longed and for which the gullible will fall. "Dr." Taylor takes no chances with the family romance and dedicates the book to his father, mother, and wife—a dubious honor.

DONALD A. LAIRD,
Colgate University.

EDGAR ARTHUR SINGER, JR. *Mind As Behavior.* R. G. Adams & Co., Columbus, Ohio. 1924. 301 pp.

Behavior to many students of life and mind means mechanism only. To this psychologist, mathematician and philosopher mechanism is true, but not the whole truth. The book is a series of fourteen essays, some previously published, and here offered in a single volume under two parts. Part I is given to an exposition and defense of the thesis that "mind is behavior." The author holds that mind is an observable object, just as objective as the datum of any science. Pursuing a purely empirical method he concludes that the "criterion of mind constitutes its definition" (p. 79); mind is what it does. Mind is a category invented to denote a quality of behavior, namely, resourcefulness. "If one being can accomplish a given purpose in $(n + 1)$ types of situation, another in but n of these, we shall call that in which the first is better equipped than the second a faculty of mind" (p. 82). ". . . . . it is the difference in reaction to different qualities of stimulus that defines qualitative differences of sensation" p. 95). Accepting a distinction between mechanism and life, though denying that there is a chasm between them, he holds that just as a wave moving through a material medium is made up of the parts of the medium, so life is re-

lated to the body-mechanism. However, these wave-like forms are not "wind-tossed, but rather purpose-drawn." Life and mind have the same denotation, but their connotation is different. Purpose, too, is objectively viewed. It is the "average common result of a type of act" arrived at by an empirical study of statistics. It presents itself in the end as a measured probability (p. 68).

Part II undertakes the ambitious philosophic task of showing that a thoroughgoing empiricism may be idealistic.

Professor Singer's study is most stimulating. Exhibiting a clear and thorough grasp of his problem, he moves to his conclusions with an originality and subtlety which combines accuracy of mathematical and scientific knowledge with refinement of literary style. Whether he succeeds in establishing his main theses is open to question. The reviewer is still in doubt upon at least two points: (1) That life and mind may be adequately conceived on the analogy of a wave-impulse moving through a material medium; and (2) that purpose is fully explained as a measured probability statistically arrived at.

EDGAR PIERCE. *The Philosophy of Character.* Harvard University Press, Cambridge. 1924. 435 pp.

Keenly aware of the metaphysical implications of psychology and convinced that there must be some truth in both the mechanical and teleological views of nature, the author enters upon a critical analysis and synthesis of the fundamental, working concepts of physics, chemistry and biology. The aim of this study is to set up an "intelligible basis" for the preservation of the reality of purposive action and at the same time "give full value to the influence of bodily changes" on thought and action. Materialism cannot explain mind—and mind must be accepted as real to save science from meaninglessness; metaphysical dualism is rejected because of an impossible epistemology; therefore reality must be a multiplicity of monads differing in degree of mentality. (Cf. Leibniz, Royce, James Ward, *et al.*) Accepting Hume and Broad's conception of cause, viz., causation is probable expectation, the laws of science are held to be not necessary or fixed descriptions of nature, but approximations. Reality is essentially dynamic. Mechanism is true in the sense that nature has habits; nature's activity tends to become relatively fixed. "Reality is purpose becoming fixed in habit" (p. 402). The processes in the inorganic world are identical with organic processes; these processes differ in degree, not in kind.

Evolution began with an "unrest of mind;" the primeval mind-stuff wanted to do something. Through an inherent energy mind organized itself. By means of trial and error, and experimentation, in a somewhat Bergsonian fashion, our present universe evolved. A

mechanical reality might be expected to develop in a straight line; not so minds. They must make progress (and progress means nothing without purpose) with the aid of experience. The body-mind problem, insoluble on any other theory, is thus dissolved. But how do the monads of the human organism fuse together into a unity? Rejecting the arch-monad theory (Leibniz) and the soul theory (McDougall), the author follows a suggestion by James and holds that they "form a whole because they are never separated" (p. 151). "Consciousness is the unity of a certain combination of elements, of monads, which we call protoplasm" (p. 407).

The reviewer confesses a good deal of sympathy with the aim, method and conclusions of this work. Clearly, of course, the scientific evidence on many points is so evenly balanced that choices are almost optional. Here, no doubt, temperament decides. Professor Pierce is correct, it seems to me, in his contention that, if we are to have a science of character, one which is to be useful in the building of a more mature and orderly society ethically, such a science must come out of a reasoned view of all the sciences—the social as well as the physical and the biological. The reader will look for a treatment of the empirical aspects of character; this the author has consciously omitted, desiring to make this problem the special task of a purposive psychology later.

EMORY S. BOGARDUS. *Fundamentals of Social Psychology.* The Century Company, New York, 479 pp.

In the *Fundamentals of Social Psychology* Professor Bogardus gives to his many readers a restatement with an enlargement of the second edition of his *Essentials of Social Psychology.* The point of view is essentially sociological. The book is divided into four parts. Beginning with a brief survey of the history of social psychology, the author devotes Part I to a psychological analysis of the individual's inherited equipment, his affective, cognitive, habitual and social nature. Part II, headed Interstimulation, is concerned with the relation of the individual to the group, and treats with keen observation such topics as isolation, stimulation, communication, suggestion, the variant forms of imitation, custom and convention diffusion, discrimination, discussion, accommodation, assimilation, and socialization. Part III deals with Groups and Interstimulation. Here the different kinds of groups, such as crowds, mobs, assemblies, publics, occupational groups, as well as group opinion, loyalty, conflict, morale, control, control agencies and products, are treated. Part IV is a study of Leadership and Interstimulation. Here originality, genius and talent, invention and discovery, the different forms of leadership, such as mental, social, prestige, and democratic, are discussed. The relation of leadership to social change and world progress is also touched upon. The author closes each

chapter with a summary statement of the explanatory principles employed therein, a list of review questions, also a dozen or more challenging problems together with a selection of readings.

Social Psychology is defined as a study "of the processes of intersocial stimulation and their products in the form of social attitudes and values. It obtains its data by analyzing personal experiences" (preface). As compared with Professor Allport's *Social Psychology*, Professor Bogardus gives a more balanced view and treatment. Many readers and teachers will probably wish that the author had omitted much that is apparent and obvious in individual and social action, and made room for a more rigorous psychological treatment of the primary drives and motives in social behavior. Among other new chapters the reviewer finds those upon isolation, stimulation, accommodation, assimilation and socialization especially appropriate and well done. The book is clearly written and in attractive style. It should find a hearty welcome among students and teachers who wish a social psychology with a sociological emphasis. I know of none better.

WALTER S. GAMERTSFELDER,
Ohio University.

G. M. RUCH. *Improvement of the Written Examination.* Scott, Foreman and Co., Chicago. 1924. pp. x + 193.

Perhaps the weakest point in the "test movement" in education has been the over-emphasis of the standardized test of achievement. Poorly constructed and unreliable tests have been marketed. Improper validation may also be charged against many of the tests which now have historical value only. Since common objectives did not exist in the sense of having been experimentally determined, many tests and measures have been validated solely on the basis of judgment of the test maker alone or some other equally inadequate criterion. The publication and sale of faulty achievement tests have had a very bad influence upon the unsuspecting consumer, namely, the public school teacher.

We seem to be learning by experience, however, the proper and desirable procedures. The situation has been corrected somewhat by the appearance of a few carefully validated achievement tests in standardized form. The most important step, however, has been the attempt to teach the school administrator and the school teacher the methods of objective test construction. The volume being reviewed is a very far-reaching step in that direction.

Dr. Ruch's book brings the results of experimental studies of test construction within the purview of the busy worker in education. The presentation is such that it should serve two very splendid purposes:

1. It should serve to develop a critical attitude in the mind of the

teacher toward any sort of test or examination. It provides the criteria for evaluating examinations of the traditional essay type which criteria are equally important when applied to the brief objective test or the standardized tests which are being marketed. The book is not intended to discourage the use of tests now in published form but for those who will give the volume careful study it does provide the means for discriminate choosing.

2. The person who gives careful study to the contents of the book will find that his concept of educational measurement has become more refined. It is equally true that the reader should be able to construct fairly reliable measuring devices in the form of new type content examinations after mastering the fundamental principles laid down and following the samples given as a guide to form.

Educational measurement must ultimately depend upon a careful analysis of general educational objectives as well as analysis of specific subject matter and skills to be imparted. Such work is under way but is by no means complete so that the hope of educational measurement in the immediate future seems to depend upon the training of prospective teachers and teachers in service in the ways and means of measurement. Many progressive school principals will find that Dr. Ruch's book will serve as a splendid volume to be put in the hands of his teachers to be used as a basis for study in teachers' meetings. He will find the facts of test construction crowded into a small volume so that elaborate details will not require attention. He will find a wealth of illustrative material so that he will not be faced with any lack of concreteness.

There are points of criticism as is true of any published volume. Many teachers will have difficulty with the last two chapters in the book. The person who has had little training in statistics will find the material a bit beyond their comprehension. Fortunately the work is so presented that the reader may get the gist of the methods of objective test construction from other chapters and may simply omit these two from their reading. The reviewer feels that Dr. Ruch has unintentionally omitted a reference to Rugg's article on Statistical Methods which appeared in the Twenty-First Year Book.

It is to be regretted that attention has not been called more specifically to the fact that the pupils are the focal point in any measuring program. Any measuring device may be mechanically perfect but it is not adequate until it has taken into account a number of factors which the subjects themselves present. Some attention has been given to the need for improvement of measures through use, that is, actually trying them out on a sufficient group of subjects and revision to make the measures harmonize with the findings of experience. These latter criticisms are really not criticisms of Dr. Ruch's book.

They are criticisms of what appears to be current philosophy in the field of measurement. Failure to get the subject's point of view, failure to carefully observe the test or measure in action in the light of the reaction of the subject and failure to revise measures in the light of new findings are criticisms which apply to the vast majority of measures in use.

The author has indicated his purpose in the preface of his book by the statements that "It is hoped that the pages include enough of significant work which has been done thus far in developing objective methods to provide a bird's eye view of the aims and progress of these efforts" and "Every effort has been made to provide concrete examples and illustrations of possible examination techniques. . . . . "The reader will find that the author accomplishes his purpose in this volume and does it in a very direct manner. The beginner in measurement will find the book stimulating and helpful. The student specializing in test technique and measurement will find the volume a necessary addition to his library.

GLEN U. CLEETON,
Carnegie Institute of Technology.

THOMAS VERNER MOORE. *Dynamic Psychology: An Introduction to Modern Theory and Practice.* Lippincott, Philadelphia. 1924.

The book is divided into six parts. The first, entitled, The Analysis, of Mind, briefly sets forth the nature of psychology and the roots from which it sprang. The science is defined as "the science of human personality." The other chapters in Part One deal with Consciousness, The Unconscious, Dreams and the Unconscious, Methods of Investigating the Unconscious, and the Classification of Mental Processes. Part Two, entitled, Stimulus and Response and Human Behavior, treats reflex actions and tropisms in the usual manner. Part Three, dealing with Human Emotional Life, presents an interesting variation in the shape of a pageful of sketches showing facial muscles of "expression" in action.

Part Four, entitled, The Driving Forces of Human Nature and their Adjustment, contains chapters on Instinct and Impulse, Desire, The Conflict, Psychotaxes and Parataxes, Compensation and Sublimation. Parts Four and Five (the latter entitled, Psychoanalysis and Psychotherapy), are the sections which the author stresses most warmly, as should be expected from the title of the book. They are written in a clinical vein, being outgrowths of the author's experience as a medical officer with the American Army in France and as Director of the Clinic for Mental and Nervous Diseases at Providence Hospital, Washington.

The author's position on Instinct may be seen from these extracts: "Impulses are the real psychological elements in instincts;" an im-

pulse being defined as "a tendency that we experience, in the presence of an actual opportunity, to make use of any one of our human abilities. . . . . There are just as many impulses as there are human abilities. Instincts are merely groups of impulses or desires to which popular parlance has given names. In danger the 'instinct of self-preservation' is called into play. This means nothing more than that every human ability that can help to extricate one from the danger is called into action. . . . . Valuable as would be the study of those groups of impulses in detail to which popular psychology has given names, we must refer this study to social psychology to which it more properly belongs."

In dealing with the mechanisms of emotional life ordinarily known as defense reactions, compensation, sublimation, and so forth, the author coins a word, psychotaxis, the root taxis referring to the tendency of the mind to adjust itself to pleasant and unpleasant situations. Psychotaxes may be positive or negative, the latter being the most common. Abnormal forms of psychotaxis may be called parataxis. Parataxis that are discussed in detail are Depression, Anxiety, Defense.

In the section devoted to Psychoanalysis and Psychotherapy, the theories of outstanding psychoanalysts are discussed, a chapter being devoted to Freud, Jung, Adler and Adolf Meyer, each. In a chapter on The Technique of Psychotherapy the author gives detailed directions for conducting examinations and treating cases. A complete schema for a mental examination is given. Numerous cases are cited, which will interest the general reader as well as the psychiatrist.

Part Six, Volitional Control, begins with a criticism of James' position that kinaesthetic images are important if not indispensable. Numerous investigations are cited which favor the doctrine of imageless thought. The author finally concludes: "the act of will is a mental element with its own quality, intensity and duration." After a chapter on the Pathology of Voluntary Action comes a chapter on the Freedom of the Will, in which the affirmative position is supported by the familiar appeal to introspection supplemented with arguments from Ostwald. The author manifests his theological interests again in the concluding chapter which he entitles, The Soul. After marshalling evidence for the existence of the soul from biology and philosophy he concludes his dialectic: "If, therefore, there must be some substrate of conscious process, something which is active when the mind is conscious, and if this cannot be a material substance, then there must be a non-material substance, that is to say, a spiritual substance or soul. Philosophy in this way confirms the conclusion of biology."

The teacher of psychology who examines this book as a possible elementary text will miss formal treatment of Sensation, Perception,

Imaging and other intellectual processes. Probably the book would be most serviceable in an advanced course in Abnormal Psychology. There are a large number of terms that would be unintelligible to the ordinary undergraduate, though the author has partially compensated for this by providing a glossary.

There are a few errors that should be corrected: On page 23 the statement is made, "according to the Freudian concept mere analysis suffices for clearing up mental difficulties," though Freud's dependence on reeducation is truthfully explained on page 258. On page 28 is found "mental events is set." On page 38, Jung's should read Jung. Pain is persistently put in opposition to pleasure in Chapter I, Part Three. The statement is even made: "There is no sense organ for . . . . pain."

The reader is impelled to maintain a kindly attitude toward the book by reason of the broadly tolerant spirit in which the author deals with contentious matters. For example, in the criticisms of Behaviorism there is no raillery or invective. "It is difficult to understand this denial of consciousness without an insight into Behaviorism as an outgrowth from animal psychology. With this foundation, however, and keeping in mind the natural tendency of some personalities to all embracing monistic concepts and sweeping denials and affirmations, and not forgetting either the delight of the radicals to shock the sensibilities of the conservatives, and the craving of every man to bring forward something new and startling, we may understand the 'psychology' of the Behaviorists though we may have serious misgivings as to the solidity of its logical foundations. . . . . It may be difficult to study our inner, mental life, but it is undoubtedly a field of investigation and a field of investigation which has long been termed by the name of psychology. This inner mental life is of interest to many investigators, and they have every right historically to term this science of our inner mental life psychology. It is impossible to investigate everything in our mental life by objective methods for this inner experience is far richer than its manifestations in actions or reactions that can be the objects of an external observer's experience."

"Nor has Behaviorism been able to attain its goal and predict and control human behavior. A pure Behaviorist would have little place in a psychological clinic or the schoolroom or the Juvenile Court, etc. Whenever one wishes to understand any of the real problems of mental conflict, or penetrate into the real causes of the difficulties of life, one has to obtain introspections from the patient in trouble. His reactions alone will not give the insight into his personality that is necessary in order to give him the help he needs. Psychology should enable us to solve the difficulties of the human race as well as to investigate the curve of learning in white rats, dogs, cats or human organisms."

The work is broadly conceived on a philosophical groundwork, manifesting at the same time warm human interests and scholarly regard for facts. To the professional psychologist it may furnish basis for coördinating hitherto isolated facts; to the enlightened layman it will unquestionably serve as a source-book for authoritative statements regarding psychological questions that are before the attention of the public.

H. D. KITSON,
Indiana University.

NEW BOOKS AND PAMPHLETS RECEIVED[1]

Books and pamphlets for review should be sent to James P. Porter, Department of Psychology, Ohio University, Athens, Ohio.

Annotated Bibliography Dealing with the Classification and Instruction of Pupils to Provide for Individual Differences. CHARLES W. ODELL. Vol. XXI, No. 12, University of Illinois Bulletin. University of Illinois, Urbana, Ill. Price 50 cents. 50 pp.

Beginnings in Educational Measurement. EDWARD A. LINCOLN. J. B. Lippincott Company, Philadelphia. 151 pp.

Christian Missions and Oriental Civilizations. MAURICE T. PRICE. Obtainable from G. E. Stechert & Company, New York City. 578 pp.

Constant and Variable Errors of Educational Measurements. WALTER S. MONROE. University of Illinois Bulletin, Vol. XXI, No. 10, University of Illinois, Urbana, Ill. Price 25 cents. 30 pp.

Constructive School Discipline. WALTER ROBINSON SMITH. American Book Company, Cincinnati, Ohio. 275 pp.

Elementary School Standards for the Improvement of Teaching. A. S. BARR. Edward Brothers, Publishers, Ann Arbor, Mich. 159 pp.

Growth of the Mind, The. KURT KOFFKA. Harcourt, Brace & Company, New York City. 383 pp.

Instinct. L. L. BERNARD. Henry Holt & Company, New York. 550 pp.

Introduction to Reflective Thinking. Columbia Associates in Philosophy. Houghton Mifflin Company, Boston, Mass. 351 pp.

Measuring Results in Education. MARION REX TRABUE. American Book Company, Cincinnati, Ohio. 492 pp.

Mental Growth of the Pre-School Child, The. ARNOLD GESELL. Macmillan Company, New York. 447 pp.

Mentality of Apes, The. WOLFGANG KÖHLER. Harcourt, Brace & Company, New York. 342 pp.

Mind as Behavior. EDGAR ARTHUR SINGER. R. G. Adams & Company, Columbus, Ohio. 300 pp.

Modern Theories of the Unconscious. W. L. NORTHRIDGE. E. P. Dutton, & Co., New York. $3.75. 194 pp.

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[1] Mention here does not preclude further comment.

Nature of Intelligence, The. L. L. THURSTONE. Harcourt, Brace & Company, New York. 167 pp.

Philosophy of Character. EDGAR PIERCE. Harvard University Press, Cambridge, Mass. Price $4.00. 435 pp.

Primitive Religion. ROBERT H. LOWIE. Boni & Liveright, New York. Price $3.50. 345 pp.

Psychological Tests of Mental Abilities. A. S. WOODBURNE, University of Madras. Superintendent, Government Press, Madras, India. 229 pp.

Psychology: What It has to Teach You about Yourself and Your World. EVERETT DEAN MARTIN. People's Institute Publishing Company, 70 Fifth Avenue, New York. 248 pp.

Psychology of the Pre-School Child, The. BIRD T. BALDWIN AND LORLE I. STECHER. D. Appleton and Company, New York. Price $2.75. 305 pp.

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